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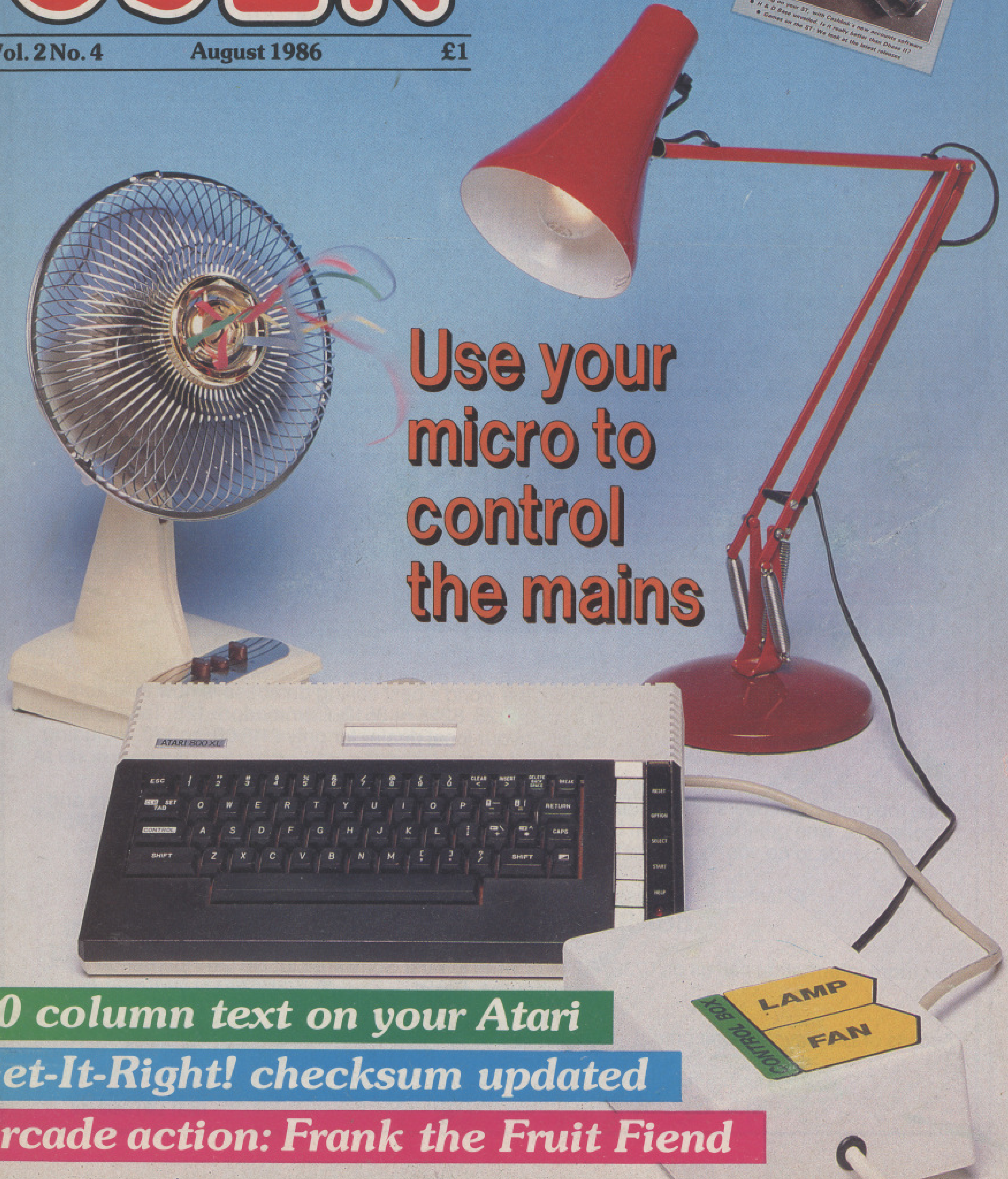
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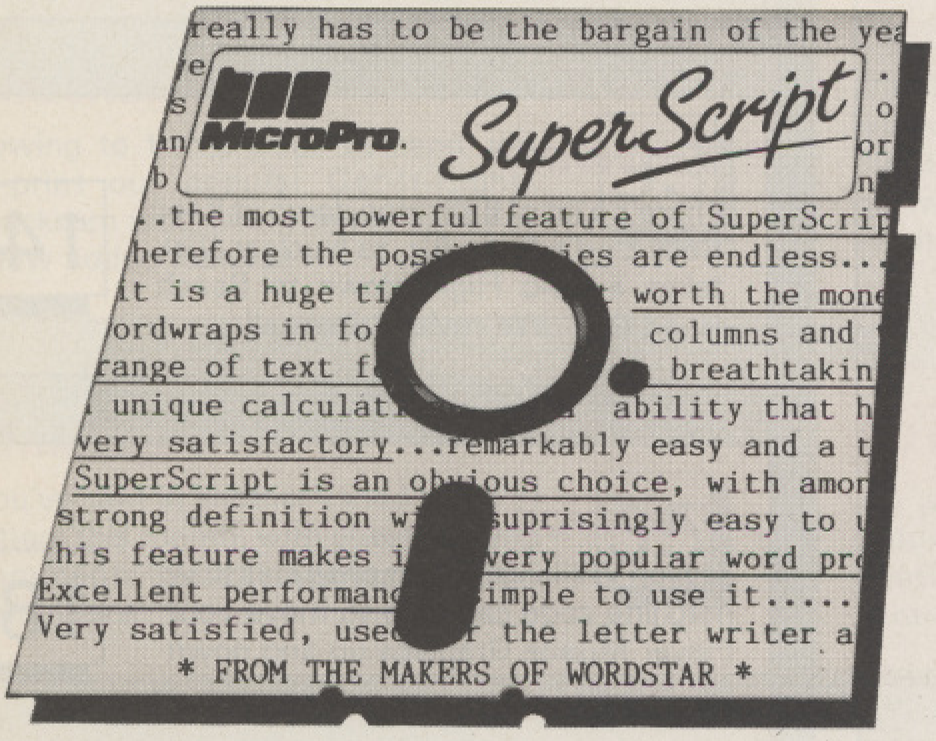
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Atari 8 bit market is booming

THE Atari 8 bit market is booming as never before, keeping computer shop cash registers jingling up and down the country at a time when business is normally slack.

Defying the traditional summer sales lull, turnover in both hardware and software sectors has been brisk during the past couple of months, an *Atari User* survey has revealed.

Dealers say there are two main reasons why Atari 8 bit machines and software are moving when other brands are not.

One is the spectacular sale of 100,000 800XL machines through Dixons over Christmas which boosted the Atari 8 bit user base to a massive 300,000 in the UK.

The other is that software houses are responding to this – and the ongoing success of the 130XE – by producing a steady supply of new programs at affordable prices.

Where the Atari 8 bit owner could expect to pay about £19.95 – and sometimes as much as £29.95 – per game a year ago, he can now get quality titles for £9.95, with some as cheap as £2.99.

Retailers report that lower prices have dramatically increased unit sales of Atari 8 bit software, making it possible for youngsters to buy games with their pocket money instead of having to save up for weeks.

Although some software publishers were initially unhappy at lower profit margins per title, most say this has been more than compensated for by vastly increased sales.

Marketing director of Atari main dealership Silica Shop Tony Deane summed up the current situation: "Owners of Atari 8 bit machines need have no fear for the future.

"The entire trade is very pleased with the volume of recent business, coming at a time when the market is normally slow. In fact we have had a couple of really good months.

"A key factor has been that the Atari 8 bit software scene has changed completely, with a vast number of low-priced titles becoming available in response to the massive user base.

"What we are seeing is something similar to the way the Spectrum market went, with publishers starting to produce software at sensible prices.

"This has created a brand new buyer market, particularly among children, which is to everyone's benefit. Kids are now able to buy a cheap game each week during their summer holidays where before this was beyond their means.

"The new software situation is exactly what the public and the dealers want – inexpensive titles and vastly increased unit sales.

"The huge success of the Dixons deal at Christmas has ensured continuing support from software houses for the Atari 8 bit machines.

"In fact this support is actually increasing momentum as more publishers climb on the bandwaggon".

WHAT THE STARS SAY

A NEW program for the Atari 8 bit range, Paranormal from Riverdale, is a four part do-it-yourself horoscope.

Company director David Edwards said: "A lot of research has gone into this. It not only predicts your future but indicates your present and past".

After feeding in your time and date of birth a full prediction is produced. In ESP a check can be made on your psychic abilities and Reincarnation – funwise – reveals if you have lived before and as what.

Numerology assesses your character and Bio-Rhythms records your mental, physical and emotional powers.

Price: £4.

Bundled STs snapped up

BUNDLED Atari ST machines are selling like hot cakes at a North London retail outlet. An average of 30 520STM and 1040STF packages a day are being snapped up by customers at Twillstar Computers in Southall. There are six packages to choose from, four including the 520ST and two the 1040ST. The 1040ST package aimed at small business users is slightly outselling the 520ST one, bought mainly by home users, reports Twillstar managing director Amarjit Dhesi.

Prices range from £575 for a 520ST bundled with 500k disc drive and mono monitor to £950 for a 1040ST with built-in 1mb drive and colour screen.

"We find the bundling of ST machines has been a tremendous success", Mrs Dhesi told *Atari User*. "Customers usually know what they want the machine to do and how much they want to spend, but they are often confused about which add-ons to buy".

Latest releases

APL68000 for the Atari ST has been released by MicroAPL.

Widely used on minis and mainframe systems, APL is now entering the micro market in a diverse set of applications, including financial modelling, statistics, market research and insurance.

APL functions can exchange data with other Atari applications. As well as the standard APL68000 product, which uses the special APL character set, MicroAPL also has a version which uses short English keywords to replace the special symbols.

It costs £170.

* * *

CONVERSIONS of four adventure games for Atari XL/XE users have been released by Robico Software. Rick Hanson, Project Thesius, Island of Xaan and Enthar Seven will only be available on disc.

Enthar Seven costs £17.95 with the other three at £14.95.

* * *

FIVE new adventures – Nightmare Maze, Screwball, Darts, Diamond Mine, and Castle Assault – have been released by Blue Ribbon for the Atari 48k range.

All cassette versions will cost £1.99 with a games disc containing all five at £9.95.

* * *

A BET to stay overnight in a haunted house forms the theme of Cloak of Death, a new adventure for the 600XL and 800XL from Argus Press Software.

Once in the house the doors slam shut and here comes the Batlegrom from Vragus IV! The cassette costs £2.99.

* * *

A TEST of your knowledge of Britain comes in a new flying adventure for users of the 600/800 XLs and 130XE.

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Atari in plan to fight crime

PROBATION officer Ray Price has a plan to fight crime using Atari computers.

There are 20 male residents, aged from 17 to 71, at his Home Office-approved hostel in Canton, Cardiff. They include men on licence, probation and others on bail.

Ray, aged 55 and 15 years in the probation service, is a keen advocate of computers to stimulate discussion on such subjects as alcoholism and aggression.

He said: "I am trying to obtain social work-type programs to use with the hostel's 800XL, and have received valuable help on translating existing software for the Atari from the Information and Technology Centres at Cardiff and Basildon, Essex".

Some of the residents play games on the Atari, and Ray feels there is an opening for introducing crime or addiction-related programs.

He said: "Once they understand the computer it will be possible to relate it to the problems associated with crime".

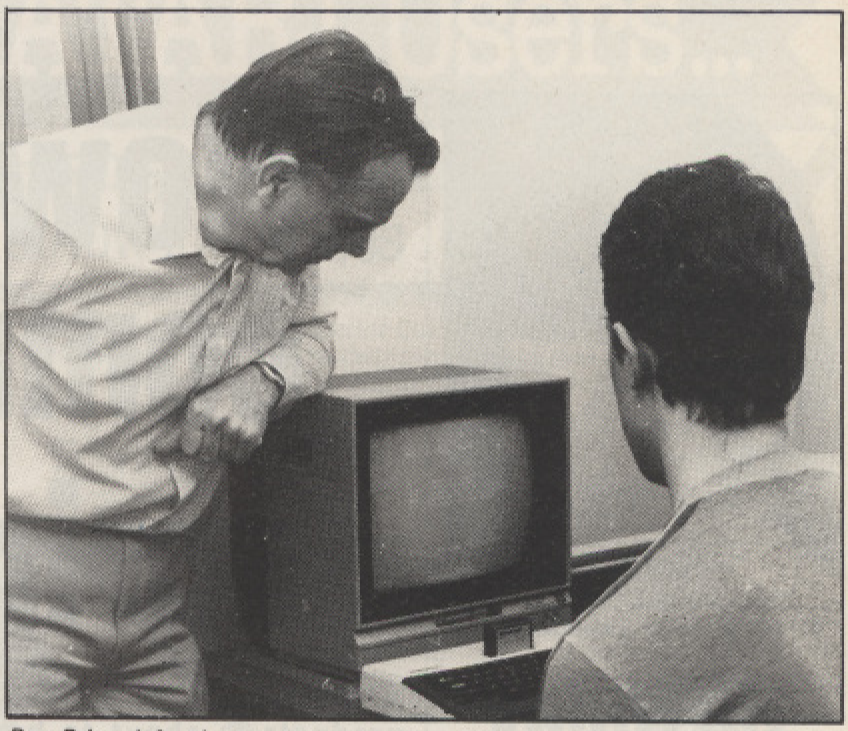
One program questions the user on the amount of alcohol drunk and how often, and then indicates whether he is near to becoming or is an alcoholic.

Another features the attitude to the police. In one situation a friend is arrested and you are asked whether you should intervene, talk to the arresting officer or obtain help through a solicitor.

Ray said: "This type of program is invaluable as we can then discuss the various situations, and evaluate the person's attitude and possibly his reasons for taking such actions".

He is keen to set up an Atari users group in South Wales, based at the Information and Technology Centre at Cardiff, which houses 10 800XLs.

"I would hope not only to attract Atari users to meetings but also interest the residents in coming along", he said.



Ray Price, left, gives a demonstration at the hostel

User groups link-up

ATARI UK is seeking to forge permanent links with all the ST user groups currently springing up throughout the country.

The company is to set up a directory of such organisations at its Slough headquarters in order to maintain regular contact.

In particular Atari hopes to seek the cooperation of the user groups with ongoing projects involving the company.

"We want to keep in touch with ST users as we would value their opinions at all times and their help on occasions", says Max Bambridge, the Atari UK boss.

Secretaries or chairmen of groups are asked to write to Philippa Kearney, Atari House, Railway Terrace, Slough, Berkshire SL2 5BZ. They should enclose the name of the club, names, addresses and telephone numbers of key officials, the number of members, and the times, dates and locations of meetings.

BIRTHDAY COMPETITION WINNERS

OUR first birthday competition was a tremendous success, with thousands of entries pouring into the office for weeks. Our grateful thanks to the manufacturers, software houses and distributors who generously donated the prizes. If your name is listed below, you can expect to hear from the respective company in the next few weeks.

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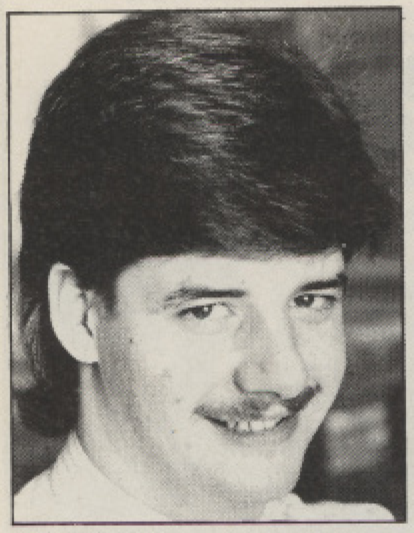
Atari computer dust covers from Database: Sean Barnett, Worcester. Michael Patterson, Middlesex. Tom O'Briain, Dublin. D. Shipman, Norwich. C.J. Carden, Brighton. John McManus, Reading. J. Martin, Orpington. C. Oldhamstead, Barking. Courtney Bradshaw, Tottenham. R. Rhodes, Bulwell. Jeff Austin, Bolton. Colin Mason, Kimbolton. Kevin Smith, Boston. P.J. Scott, Malton. M.G. Haxton, Chesterfield. D. Waite, East Bierley. Lawrie Tremlett, Chichester. Antony J. Gardiner, Worksop. Gary L. Bergin, Jordanthorpe. Iain MacDonald, Cumbernauld. David W. King, Balerno. Gerry Black, Clancool. Richard Potts, Cherylesmore. David Cope, Bartley Green. P.R.M. Watson, Sunbury-on-Thames.

Box of ten 5.25 inch discs from Database: R. Blunn, Brockworth. M.A. Roberts, Penley. K. Boden, Barton, Under Need Wood. M.S. Donnelly, Salford. J. Lockie, Houghton-le-Spring. A. Saje, Nuneaton. Martin Smith, Wigan. A.R. Robson, Oakham. Dean Southall, Denaby. C.S. Braidwood, Bromborough.

Flipside or Lands of Havoc from Microdeal: A. Fong, Sale. P. Bryant, Maidenhead. E. Sheehan, Maidstone. Steve Pitts, Hemel Hempstead. Liam Boyle, Maidstone. C. Padua, Southampton. D.B. Mortimore, Felixstowe. J. Smyth, Moray. G.R. Pai, Dundee. C.P. Wong, Plymouth.

ST K-software from Kuma: Eric Lomax, Chipping Warden. T. Wight, Bovingdon. D.P. Price, Wylam. Hans. G. Eisner, Kingskerswell. John R. Lavelle, Newtown Abbey. D.A. Hooper, Hayes. David Barnes. Bracknell. R.J. Martin. Portsmouth.

Brataccus for the ST from Psygnosis: I. Fern, Chesterfield. D.H. Row, Camberley. P.M. Zimmer, Shepshed. Donald P. Brown, Peterhead. R.J. Pike, Steyning.



Steven Burke . . . celebrating

Birthday offer

TO celebrate its first birthday Compumart, the Atari mail order company, is offering an Atari ST pack for £445 – a saving of £140.

The pack consists of the 520STM with 500k drive and 20 3.5in discs.

Company managing director Steven Burke said: "We have just completed a move to a new warehouse in Loughborough and as it is also our birthday we decided to make special offers to celebrate".

For readers of *Atari User* the company is offering two free discs with every box of 10 bought.

Now the Atari comms scene springs to life

A NEW wave of comms products is about to be launched for the ST market in the UK as the boom in sales of the machines continues unabated.

The latest breakthrough has been made by Peter Connors, a regular contributor to *Atari User,* with a program called FLying STart which he is selling for £10.

"I bought an ST to take the place of my ageing BBC Micro, but I still wanted to be able to access services like Prestel", said Connors. "I didn't set out to write a commercial package, just something that I could use myself".

But now there is a good chance FLying STart could be taken up by one of the major comms software publishers, and it has already been enthusiastically reviewed by Micronet.

ATARI has entered the modem war in the United States with a 1200 baud full duplex Hayes-compatible device priced under $100.

It will serve Atari's entire range of ST and 8 bit machines and is expected to appear in the shops within weeks.

But the modem is unlikely to be seen in the UK due to the long drawn out process of obtaining specifications approval by BABT.

The package will work with any V21/V23 modem and has full colour or monochrome text and graphics. It can handle scrolling bulletin boards and is fully menu driven.

Connors is currently working on enhancements that will lead to a V-1.03 version to follow the existing V-1.01 product at a "somewhat higher price".

Meanwhile modem manufacturer Miracle Technology is putting the final touches to a powerful integrated ST comms software package called SuperTerm which it intends to launch on the Atari stand at the PCW Show in September.

It will have standard Ascii and Viewdata/Prestel modes of operation based on the GEM environment with VT100 emulation. Users can select from low or high resolution displays.

SuperTerm will have capability for telesoftware downloading, file transfer, print frames to printer, and carry an in-built telephone directory.

Baud rate will be selectable between 300 full duplex up to 2400 full duplex and the complete package is expected to cost just under £50.

Bundled with Miracle's new Hayes-compatible WS4000 modem, it will be offered as a complete comms system for the ST at under £200.

Trivial Pursuit for Atari

TRIVIAL Pursuit, currently the world's most successful board game, is to be released by Domark for Atari users early next year.

With 70 million copies having been sold worldwide – three million in the UK – there was fierce competition among software companies to obtain the rights to produce a home computer version of the game.

Domark's joint managing director, Mark Strachan, said: "We're delighted that the Trivia people chose us".

The game will be very similar to the board version with the computer displaying the board and running the game.

A minimum of 3,000 questions will be included with the program, some with text only, but nearly half with sound and graphics.

To make replacement questions easier to market Domark is using a new system, UniLoad, which will mean that other versions can use the same data tape.

Strachan said: "We have already had 40,000 advance orders".

It is expected to sell for about £14.95.

TEENAGERS SUE OVER ATARI GAME

A MILLION dollar suit has been filed against the Atari Games Corporation by two teenagers from Redwood City, California.

The boys are claiming that the bestselling arcade game Paperboy released by the Warner Communications-controlled company had been written by them.

Mark Caesar, 14, and Robin Hallingstad, 16, say they sent an outline of the game to Atari back in 1983.

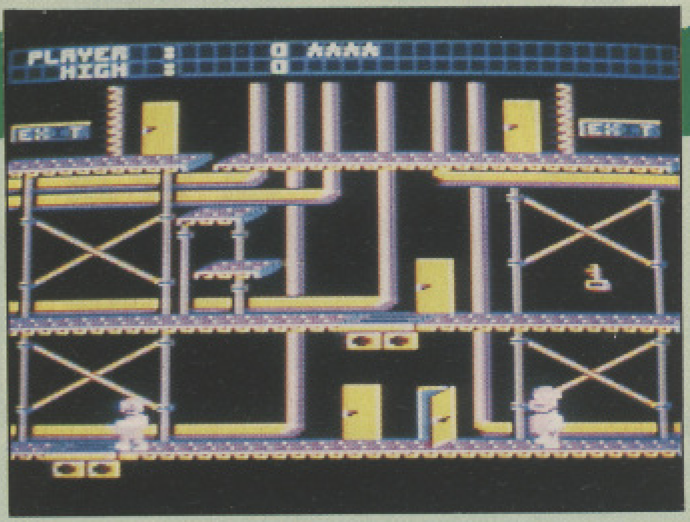
So they were somewhat surprised two years later when they came across the game in a local arcade. It involves a paper boy whose attempts at delivery are hampered by vicious dogs, fast moving cars and a series of other obstacles.

Since its release, it is reported to have been a big hit in coin arcades across the States.

The boys now have a top Californian attorney representing them in their case against the company.

Atari officials are refusing to comment on the story, insisting that they have yet to receive a copy of the action against them.

Platform yawns



Program: Beer Belly Burt's Brew Biz
Price: £2.99 (cassette), £4.99 (disc)
Supplier: Americana Software, c/o US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX. Tel: 021-356 3388

Sorry to have to report that, despite the intriguing title, this game is nothing more than another one off the seemingly interminable production line of platform games. In fact, the only unusual thing about it is the title. Score zero for originality.

The game is described on the packaging thus: "32 fast action screens of action-packed exciting fun as Burt wanders through the Brewing Factory".

There may well be 32 screens but after a few plays I was so bored that I had no desire to put that statement to the test. The screens I did manage to stay awake through were certainly neither fast-action, exciting or action-packed. Snail-action, monotonous and yawn-packed would be more apt.

The Burt of the alliterative title is a blobby pink figure who can run left and right (taking a bit of time to get up steam), and can jump, sit down and fire bullets.

The game begins outside the factory where there are separate entrances for shipping, production and control, each of which leads to a different part of the factory.

Basically, each screen is a series of stages dotted with doors through which the meanies, without which no platform game is complete, appear.

Each shooting meanie looks exactly the same as the last shooting meanie. Kill one and another eventually appears from the same door.

As well as meanies, platforms and doors, there are moving trucks, escalators, rolling barrels and blowers, the latter gently floating Burt upwards to a higher platform. Moving off a certain edge of most screens usually takes you to another screen.

Don't ask me what the object of the game is – the minimal instructions were silent on that point. About the only thing they do tell you is that the game can be played by one or two players.

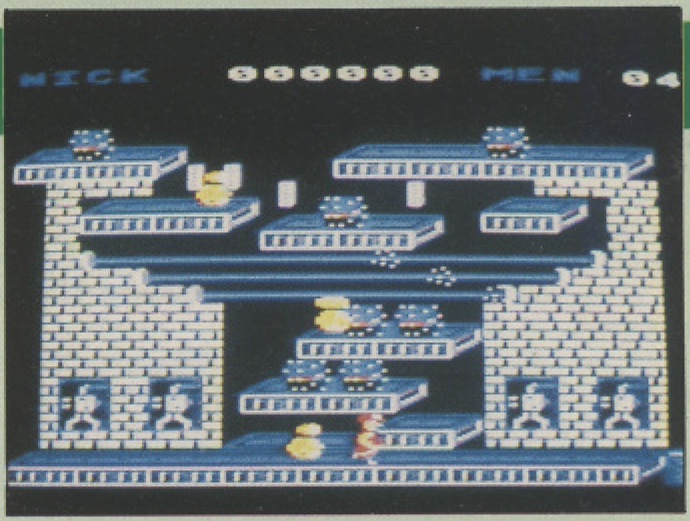
The gameplay was dull, the graphics mediocre, the use of colour unimaginative, the animation basic and the sound below average.

Granted it is inexpensive, but if you really want a cheap but enjoyable platform game, better by far are Ollies Follies and Nuclear Nick from the same company.

Bob Chappell

Sound	***4***
Graphics	***5***
Playability	***4***
Value	***5***
Overall	***4***

Platform fun



Program: Nuclear Nick
Price: £2.99 (cassette), £4.99 (disc)
Supplier: Americana Software, c/o US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX. Tel: 021-356 3388

SURPRISE, surprise, Nuclear Nick is yet another platform game. Nothing wrong with that provided the game challenges and entertains – and this one certainly does.

You control Nick, the usual running, jumping bimbo, whose job it is to whizz around various platforms grabbing the goodies and blitzing the baddies.

The basic villains of the piece are patrolling roly-poly robots whose very touch spells lights out for our hero. Although Nick has no weapons, he can strike back by eating what appear to be – I hope you're ready for this – radioactive hamburgers!

I say appear because US Gold sent no instructions with my review copy. But given the title, the flashing of said burgers, the fact that Nick immediately starts to pulsate and glow after feeding his face, and the dire consequences for the robots, it seems a fair deduction.

That being so, the game deserves to win the equivalent of the Jules Rimet trophy for daffy plots, not to mention the matter of questionable taste (no pun intended).

Gobbling down a jumboburger gives Nick several seconds worth of radioactive indigestion, enabling him to neutralise as many robots as he can reach before his digestive system returns to normal. Once victorious, Nick can progress to the next screen.

Further points can be amassed by gathering up small suspended bricks (nuclear waste, antacid tablets?) along the way. Nick has five lives and 20 screens to cross, each tougher than the last.

While the robots and burgers are always the same in appearance if not quantity, each screen has a different configuration of platforms.

The graphics are crisp and attractive and, though there is no music, sound effects are generous and, I think, appropriate (have you ever swallowed a radioactive burger?).

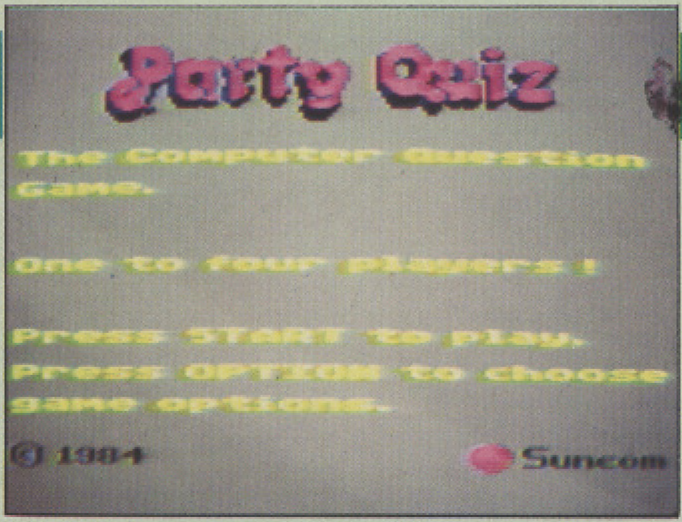
The game is simple to get into, while the difficulty of the screens range from taking candy from a baby to *expletive deleted.*

Despite its dubious scenario and unsubtle content, Nuclear Nick is a pretty good platform game. And at the cheapo asking price, it's a genuine bargain.

Bob Chappell

Sound	***7***
Graphics	***8***
Playability	***9***
Value	***9***
Overall	***9***

Question time



Product: PQ – The Party Quiz Game
Price: £19.95
Supplier: Suncom, c/o Software Express, 514-516 Alum Rock Road, Alum Rock, Birmingham B8 3HX. Tel: 021-328 3585.

SINCE the advent of the Trivial Pursuit quiz game, dining rooms have been buzzing until the early hours of the morning with questions and answers on a variety of general knowledge topics.

As parents and children recreate long-forgotten family evenings, even the trusty TV faded into the background and the ever popular home micro began to feel somewhat neglected.

But fear not, help is at hand for you micro addicts who suffer withdrawal symptoms from even one night's absence from your box of bytes.

Suncom has released a computer version of this popular family general knowledge game in the form of Party Quiz. You can liken it to the video game seen currently in many public houses.

You are provided with four neat and well built quick response hand controllers so that the game can be played without using the keyboard.

All the controllers plug in to one interface box which in turn connects to both joystick ports. There are four buttons on the controllers and they correspond to the numbered answers that appear on the screen.

There are two types of questions – a multiple choice, which displays four possible answers with only one correct, and a straightforward true/false variety requiring the use of only two of the four buttons.

Two discs contain all the questions, with the Atari version on side A. These questions are pure general knowledge with no specialist subjects, as in the table top game.

Once the game is loaded, pressing Option displays a menu screen. From here you can alter the game format by selecting the number of players, the response time for each quiz, the number of rounds, type of game and whether any of the four players is to be handicapped or not.

The response time can be set to 10 seconds, five seconds or a challenging three seconds and a visible countdown bar in the main game reduces in length at a speed relative to this response time as you attempt an answer.

You can have up to 20 rounds, with each round containing 10 questions.

There are also lightning bonus rounds where the computer randomly selects a player who is given 20 seconds to answer up to 10 questions. It then picks another player until all have had a crack at the bonus round.

The type of game can be altered between competitive and social. In the former only the first correct answer scores, whereas in the latter all players may attempt an answer, with all correct answers scoring.

Handicapping any player from the main menu screen immediately reduces his response time by half. His controler is automatically rendered inactive until half the response time has elapsed.

The computer automatically takes care of the scoring and at the end of the game all the players are rated according to their performance.

The game is obviously meant for the American market, as the questions generally orientate around American culture, history and general knowledge.

For example the question "The area code for Las Vagas?", would probably leave even the most experienced Mastermind addict clueless.

There are no graphics in this game, and the little use made of sound is restricted to highlighting the decreasing countdown bar, but this does add somewhat to the tension when you are deep in thought.

The idea of four separate controllers is great and makes for quick responses, but this game has been introduced too late, as Trivia fever has already begun to dwindle.

It's a worthy effort, but not for me. The general knowledge addicts among you may quite enjoy it, but it's rather expensive for what you get – and you are going to have to brush up an awful lot on America.

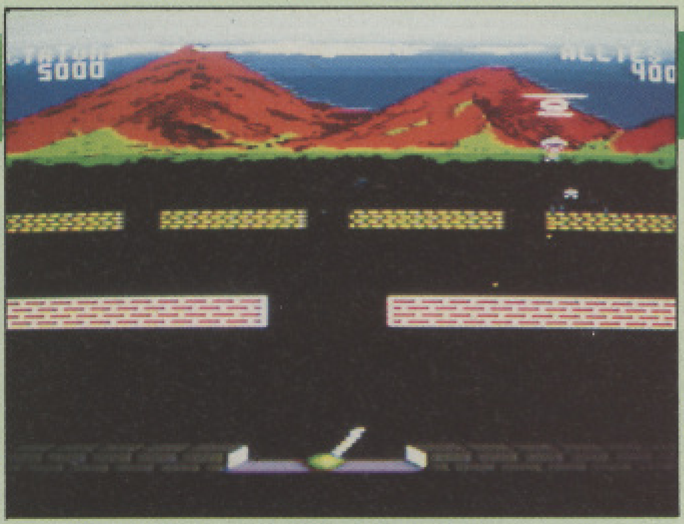
David Andrews



Party Quix comes complete with two discs, a manual and four controllers.

Sound	***5***
Graphics	***N/A***
Playability	***9***
Value for money	***8***
Overall	***8***

It's a great war...



Program: Beach-Head II
Price: £34.95
Supplier: Access Software, c/o Software Express, 514-516 Alum Rock Road, Alum Rock, Birmingham B8 3HX. Tel: 021-328 3585.

AS you'll have gathered from the title, this is the long awaited follow-up to the very successful Beach-Head. And for the money, this is better than the original.

Sub-titled The Dictator Strikes Back!, it is a two-player game with your opponent being either another player or the computer. Against the computer, it doesn't matter which side you play, for the computer will control the other.

Like its predecessor, Beach-Head II has four distinct sequences. The first, Attack, is probably the best. In it the Allies drop troops from a helicopter ready to begin the assault against the Dictator's stronghold.

The troops have to be parachuted evenly behind a four-section rear wall from which they must advance down the screen to a two-section wall.

From here they scramble towards the door of the enemy's lair and out of reach of the machine gun which all the time has been rat-a-tat-tatting away at them leaving a pockmarked battlefield.

Men can be sent over the wall as a diversion and grenades can be hurled at the gun, but the ultimate objective is to get at least one man to the door.

In Rescue, escaping hostages have to flee across an open courtyard. The Dictator has four methods of stopping them – dropping stones from a wall, placing mines from trapdoors hidden in the courtyard, and sending out tanks and rocket-launching trucks. The Allies try to fend off all these attacks with a captured machine gun.

Escape has the hostages up in a helicopter which is under attack from the Dictator. Graphically this is the weakest of the four scenarios, though still pretty exciting to play.

The final sequence Battle, has the Dictator (the Dragon) and the head of the Allies (J.P. Stryker) facing each other in a head-to-head across an underground river.

Perched on long platforms, the two hurl poontas (sharpened wooden sticks, it says here) at each other for several rounds.

The throws can be straight or curved and small speech bubbles appear to let you know the rivals' innermost thoughts.

First one to get impaled with four poontas is a sissy and falls off the platform and into the river.

There is an option to practice any screen and an automatic demo mode to show you how it should be done.

I missed the speech synthesis of the Commodore 64 version but even so, this is still a superb game.

The animated action and use of sound are a treat. The game offers bags of thrills and spills and is one of the best releases for the Atari this year. Not to be missed.

Bob Chappell

Sound	8
Graphics	9
Playability	9
Value	8
Overall	9

Good simulation



Program: Solo Flight II
Price: £9.95 (cassette), £14.95 (disc)
Supplier: US Gold, Unit 2 and 3, Holford Way, Holford, Birmingham B6 7AX. Tel: 021-356 3388

SOLO Flight is an American real-time flight simulator which has been around quite some time. This is an updated version, providing a better cockpit control layout and a built-in flight trainer.

The simulation is based around the light monoplanes of the late 1920s and early 1930s, particularly the Ryan S-T series, and offers flying practice together with a Mail Pilot game in which you can put your learned flight skills to a considerably sterner test.

The screen display is unusual. The bottom half is taken up with the expected cockpit controls while the remainder provides a view not only of the landscape but also, oddly enough, of your plane.

Your viewpoint is from just above and behind your plane, from which a shadow is cast at low altitudes. You can also switch to a left, right or backward view from the cockpit.

While it might seem a bit strange at first, it works out quite well and makes flying the plane that much easier.

The comprehensive and clear instrumentation includes indicators for throttle, airspeed, altitude, artificial horizon, vertical velocity, flaps, and VOR radial. There is also an altimeter, fuel gauge, lights for brake, landing gear and engine overheat, DME (direct measuring equipment), ILS glidescope indicator and magnetic compass.

In Flying Practice mode you can select the American state you will fly across (Kansas, Washington or Colorado) and the weather conditions: clear, windy or IFR (instrument flight rules – low cloud).

Or if you prefer, you can simply practice landing.

You can also be accompanied by an on-board flying instructor. The instruction takes the form of text messages such as "You are too high. Push forward." which appear across the bottom of the screen.

Each message repeats until you obey it, but the tuition can

be switched off at any time by a single command. There is no speech synthesis in the Atari version.

In Mail Run mode your job is to deliver sacks of mail across different states to their destinations in as short a time as possible. You can select the level of difficulty from student (easiest) to command pilot (most difficult) and decide which destinations and how much mail and fuel to carry.



As the game progresses weather conditions deteriorate and, depending on the skill level selected, your plane may develop mechanical and instrument malfunctions.

The graphics are fairly rudimentary and the display a little slow and jerky.

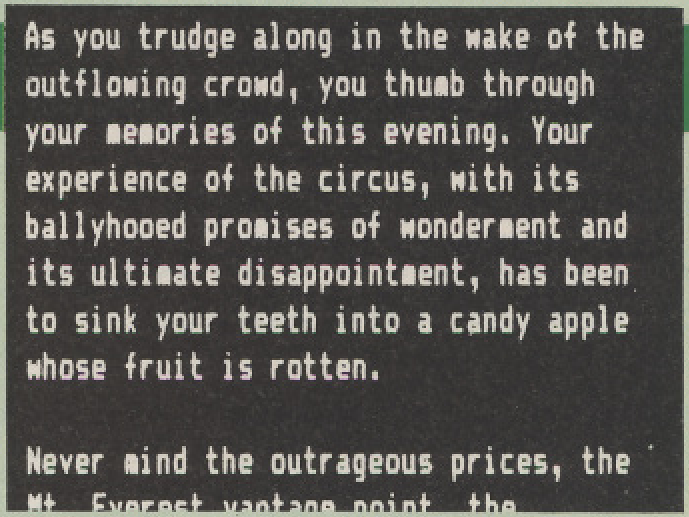
Even so, this unusual flight simulator is pleasantly easy to get to grips with, particularly given the presence of the onboard instructor. The Mail Run option is an added bonus.

Enjoyable and entertaining, the new Solo Flight has much to commend it.

Bob Chappell

Sound	*5*
Graphics	*7*
Playability	*8*
Value	*8*
Overall	*8*

The big topper



Program: Ballyhoo
Price: £27.95
Supplier: Infocom, c/o Silica Distribution, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX. Tel: 01-309 0300.

WHAT connection is there between a sucker, an Annie Oakley and a First of May? All those who shouted "Circus!" give yourself a cuddly toy. To put the rest of you in the picture, a sucker is a circus-goer, an Annie Oakley is a ticket and a First of May is a novice circus performer.

Now the only reason I happen to be knowledgeable about circus lingo is because I've been playing Ballyhoo, Infocom's latest standard level text adventure. In Ballyhoo, all the action takes place in a circus where the shabbiness of this particular big top is matched only by the seediness of the performers.

Loitering after the show was over, I managed to eavesdrop on a conversation between the circus owner, Munrab (try spelling it backwards), and a private detective. It seems that Chelsea, the owner's daughter, has been kidnapped and might have been stashed somewhere on the circus lot. Since the gumshoe appears to be about as competent as Clouseau, I decided upon a little sleuthing of my own.



The adventure is full of fun and originality and I got to meet many interesting characters. For instance, there is Tina, a lady so fat she occupies two locations at once! When I tried to get a little closer to her massive bulk I was told "The slope's too steep!"

There is more to Comrade Thumb, a diminutive Russian, and the inaptly named Chuckles, a surly clown, than first meets the eye while a visit to Andrew Jenny (half man, half woman) proves a most confusing experience. And having my bumps felt, palm read and being placed in a hypnotic trance by Rimshaw the Incomparable are not things I shall forget in a hurry either.

Then there are the animals. Fancying my chances as a lion tamer, I stepped boldly into the lion's cage to put them through their paces. Exit stage right, ripped to pieces but somewhat wiser. Maybe there was better luck to be had with Mahler, the fearsome gorilla. The question was – should I enter his cage wearing that ridiculous gorilla costume I'd found lying about?

Drawing a veil over my experiences with Mahler, I turned to my exploits as a high-wire artist. Here I had the opportunity to excel – and would have done if some roustabout hadn't removed the safety net when I wasn't looking. Result – back again to being the human platypus in one of the sideshows.

The mystery and danger intrinsic to the plot of Ballyhoo is well-seasoned with wit and humour. I particularly enjoyed an encounter with the Egress – a rare but ferocious mammal – and, elsewhere, being able to vent my feelings during the moment between doing something painful and actually feeling the pain.

Yes, Infocom has done it yet again. Ballyhoo is a superb adventure, full of intrigue, originality and intelligent humour. Don't miss it.

Bob Chappell

Sound	*N/A*
Graphics	*N/A*
Presentation	*10*
Value	*10*
Overall	*10*



Now let's get things moving...

Part Four of STEPHEN WILLIAMSON'S series on player missile graphics

THIS time I will show how to move players around the screen by using animation techniques.

Program I demonstrates the basic method for moving players. The first section, lines 50 to 150, contains the standard player missile initialisation routines that you will be familiar with if you have followed this series so far.

POKE 755,0 in line 50 switches off the cursor, so if you stop the program and want to switch the cursor back on, either press Reset or type POKE 755,2.

Moving a player horizontally is straightforward. You simply increase or decrease the value held in the horizontal register corresponding to the player you wish to move. A list of these registers was given last month, but in case you do not have a copy handy, they can be summarised as follows:

- Registers 53248 to 53251 are the horizontal registers for players 0 to 3.
- Registers 53252 to 53255 are the registers for missiles 0 to 3.

One problem with the horizontal registers is that you cannot PEEK them to find out the current horizontal position of the player or missile stripe.

If you type:

POKE 53248, 140:
PRINT PEEK (53248)

you would expect the micro to print the number 140, the value you have just stored in location 53248. Instead you get the number 0. So where has 140 gone? The Antic chip has taken 140 into its inner workings, altered the horizontal position of the player stripe accordingly and then immediately reset the value held at 53248 to 0 before the PRINT PEEK (53248) instruction has been handled. This is all very inconvenient if you want to keep track of the horizontal coordinate of the player stripe.

For most animation procedures we need to assign a variable to hold the current player stripe position. Line 170 of Program I uses the variable *HORIZ* to store the current horizontal value of the player 0 stripe, which is initially 130.

Line 180 assigns another variable,

```
10 REM  PLAYER MISSILE GRAPHICS
20 REM  by Stephen Williamson
30 REM  for Atari User
35 REM  PLAYER ANIMATION
40 REM  PROGRAM I - PART 4
50 GRAPHICS 0:SETCOLOR 2,0,0:POKE 755,
0
60 PMB=PEEK(106)-16
70 POKE 54279,PMB
80 PMBASE=PMB*256
90 FOR J=0 TO 255:POKE PMBASE+1024+J,0
:NEXT J
100 FOR J=0 TO 12:READ A:POKE PMBASE+1
024+140+J,A:NEXT J
110 POKE 559,62
120 POKE 704,204
130 POKE 712,34
140 POKE 53248,130
150 POKE 53277,3
160 POSITION 6,18:? "USE JOYSTICK TO M
OVE PLAYER"
170 HORIZ=130:VERT=140
180 S=STICK(0):RESTORE
190 IF S=11 THEN HORIZ=HORIZ-1
200 IF S=7 THEN HORIZ=HORIZ+1
210 POKE 53248,HORIZ
220 V=0
230 IF S=14 THEN VERT=VERT-1:V=1
240 IF S=13 THEN VERT=VERT+1:V=1
250 IF V=1 THEN FOR J=0 TO 12:READ A:P
OKE PMBASE+1024+VERT+J,A:NEXT J
260 POSITION 6,20:? "HORIZONTAL POSITI
ON =   ←←←";HORIZ
270 POSITION 6,21:? "VERTICAL POSITION
   =   ←←←";VERT
280 GOTO 180
290 DATA 0,40,146,214,254,238,254,238,
186,170,56,16,0
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	14906	20	16110	30	14906
35	13997	40	13773	50	6965
60	2770	70	2866	80	2903
90	7736	100	9405	110	1973
120	2090	130	1938	140	2560
150	2136	160	9210	170	3601
180	3983	190	5205	200	5086
210	3164	220	579	230	5474
240	5463	250	12410	260	9628
270	9332	280	1632	290	7676

Program I

S to hold the value of STICK(0) which is the status of the joystick. The values are 11 – left, 7 – right, 14 – up, 13 – down and 15 – centre.

Lines 190 and 200 check to see whether *S* is 11 or 7 – joystick pointing left or right and alters the value of *HORIZ* by one according to which direction the player is to move.

Line 210 POKEs the value held in *HORIZ* into the horizontal register for player 0, to move the player stripe one position to the right or left. Each movement of the player stripe is equal to the width of one pixel.

The display at the bottom of the screen gives the current horizontal value. At a value of 48 the player starts to leave the blue area and moves across the background until, if you continue to move the joystick left, it will move off the screen. You can continue decreasing the horizontal value although this will have no effect on the screen display.

If the value of *HORIZ* goes below 0 or above 255 you will get an error message as the program reaches line 210 and tries to put the value of *HORIZ* into the horizontal register 53248. This is because you cannot poke a number more than one byte or less than 0 into a single memory address.

To avoid this problem, it is normal for a player missile program to contain error trapping routines. Program I does not have error routines so that you can experience what happens when you try to move a player too far, but Program II does include one.

So much for horizontal movement, which is simple to operate. When it comes to vertical movement things are a little more complicated. It is not actually possible to move the player stripe vertically. It will always stretch from the top of the screen to the bottom, no matter how many or how few pixels are plotted within it.

We saw last month how, when you store the shape data into the appropriate player data area, the distance within that area from which you start to load the data determines the vertical position of the shape. This is why, in line 100, the data for the player shape is loaded 140 bytes from the base of the player 0 data area to make sure that the bug appears part way down the screen.

```
10 REM  PLAYER MISSILE GRAPHICS
20 REM  by Stephen Williamson
30 REM  for Atari User
35 REM  PLAYER ANIMATION
40 REM  PROGRAM II - PART 4
50 GRAPHICS 0:SETCOLOR 2,0,0:POKE 755,
0
60 PMB=PEEK(106)-16
70 POKE 54279,PMB
80 PMBASE=PMB*256
90 FOR J=0 TO 255:POKE PMBASE+1024+J,0
:NEXT J
100 FOR J=0 TO 12:READ A:POKE PMBASE+1
024+140+J,A:NEXT J
110 POKE 559,62
120 POKE 704,204
130 POKE 53248,130
140 POKE 712,34
150 POKE 53277,3
160 POSITION 6,18:? "USE JOYSTICK TO M
OVE PLAYER"
170 FOR I=0 TO 41:READ A:POKE PMBASE+I
,A:NEXT I
180 HORIZ=130:VERT=140
190 S=STICK(0):RESTORE
200 IF S=11 THEN HORIZ=HORIZ-1
210 IF S=7 THEN HORIZ=HORIZ+1
220 IF HORIZ<48 THEN HORIZ=48
230 IF HORIZ>202 THEN HORIZ=202
240 POKE 53248,HORIZ
250 IF S=14 AND VERT>32 THEN A=USR(PMB
ASE,PMBASE+1023+VERT):VERT=VERT-1
260 IF S=13 AND VERT<212 THEN A=USR(PM
BASE+21,PMBASE+1023+VERT):VERT=VERT+1
270 POSITION 6,20:? "HORIZONTAL POSITI
ON =   ←←←";HORIZ
280 POSITION 6,21:? "VERTICAL POSITION
   =   ←←←";VERT
290 GOTO 190
300 REM *** SHAPE DATA ***
310 DATA 0,40,146,214,254,238,254,238,
186,170,56,16,0
320 REM *** M/C ROUTINE UP ***
330 DATA 104,104,133,204,104,133,203,1
60,1,177
340 DATA 203,136,145,203,200,200,192,2
2,208,245,96
350 REM *** M/C ROUTINE DOWN ***
360 DATA 104,104,133,204,104,133,203,1
60,21,177
370 DATA 203,200,145,203,136,136,192,2
55,208,245,96
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	15706	20	16910	30	15706
35	14797	40	14665	50	6965
60	2770	70	2866	80	2903
90	7736	100	9405	110	1973
120	2090	130	2560	140	1938
150	2136	160	9210	170	8163
180	3601	190	3983	200	5205
210	5086	220	5016	230	5207
240	3164	250	13387	260	13743
270	9628	280	9332	290	1635
300	3666	310	7676	320	4671
330	6373	340	7005	350	5318
360	6605	370	7213		

Program II

If you alter line 100 by changing the 140 to 141, the bug will appear one pixel further down the screen. 139 would display a player one pixel further up.

It should now be obvious how to give the illusion of vertical movement. We need a routine to move the whole of the shape data one byte further up or one byte further down in memory. Line 250 performs this function.

First, line 170 assigns the variable *VERT* to hold the current value of the vertical position of the player in the same way as the variable *HORIZ*.

Lines 230 and 250 check for the up and down positions of the joystick and increase or decrease the value of *VERT* accordingly. If the joystick has been moved up or down then the variable *V* is set to one. *V* acts as a flag. When *V* is one then the vertical movement routine in line 250 is actioned. When *V* is zero, and therefore no vertical movement is required, the routine in line 250 is ignored.

The routine in line 250 is similar to the shape data loading routine in line 100 and loads the shape information into the player 0 data area. Instead of adding a fixed value of 140 like line 100, the variable *VERT* is added to the base address of the player 0 data area (PMBASE + 1024) so that the bug will appear to move a distance equal to one pixel up or down.

The data statement for the player 0 shape is contained in line 290. Notice that there is a zero at the beginning and end of this shape data which is there to erase the previously plotted pixel from the top or bottom of the last player shape.

To see what happens when this is left out, alter line 290 by deleting the two zeros, and change the loop count in lines 100 and 250 from 12 to 10 so that the correct amount of data is read. Now when you run the program, strange things happen! A trail of pixels forms as you move the joystick up or down.

The RESTORE statement in line

→

180 allows the data to be re-read in line 250.

You probably won't be very impressed by the Program I demonstration of vertical movement. The bug is not very lively, travelling more like a snail than an insect, with a rippling effect as the pixels are replotted.

There is not much that can be done about this if we are to stick to Basic. The replotting routine in line 250 takes time, and there will always be a noticeable delay as the program keeps updating the information held in the player data area.

If you want to add some zest to the program, you have to enter the realms of machine code.

Program II is an improved version of Program I that includes two machine code routines, one for up movement and the other for down.

Don't worry if you do not have a clue about machine code. The two routines can be copied and included for use in your own player missile programs without having to understand exactly how they work.

If you run Program II it will at first look very much like Program I with the same bug waiting for you to move it with the joystick. But when you move it up or down you will see that the animation is much smoother.

Line 170 reads the data contained in lines 300 to 370 – the machine code routine – and stores it in the unused part of the player missile data area. This unused area is not needed by the player missile system and is 768 bytes long for single resolution players and 384 bytes long for double resolution players – plenty of room in which to store machine code routines. See the player missile data area map in July's *Atari User*.

The first routine – 21 bytes long – is placed in the unused area from PMBASE upwards, and the second routine starts at PMBASE plus 21.

The routines as they stand will control any player or missile up to 20 pixels in height. To use the routine for taller players, alter the number 22 in line 340 to two greater than the player height, and the 21 in line 360 to one greater.

Horizontal movement in Program II is handled in the same way as Program I. An error trapping routine has been inserted in lines 220 and 230 that stop *HORIZ* becoming less than 48 or more than 202. This means that the player cannot leave the playfield 0 area and, of course, it also prevents an error message occurring due to the value of *HORIZ* going below 0 or above 255.

Lines 250 and 260 control vertical movement by calling up the machine code routines.

VERT, the vertical coordinate variable, is first checked to make sure that it is not greater than 32 or less than 212 – when the player is at the top or bottom edge of the playfield – before passing control of the program to the appropriate machine code routine.

The formula for using the routine is:

A=USR (machine code address, player address plus vertical position)

Following this formula, the call-up routine in line 250 becomes:

A=USR(PMBASE, PMBASE+1023+VERT)

The up machine code routine starts at PMBASE and the down routine at PMBASE+21.

For the routines to operate correctly, *VERT* must be increased or decreased by no more than one at a time.

After the routines have been called up and the player replotted, *VERT* is adjusted by one ready for the next replotting operation.

Once you know the correct data for the up and down machine code routines then operating them is no more difficult than the pure Basic routine used in Program I – but the effect is much better.

Program III introduces another animation effect and another machine code routine. In this program the

```
10 REM  PLAYER ANIMATION
20 REM  by Stephen Williamson
30 REM  FOR ATARI USER
35 REM  PLAYER ANIMATION
40 REM  PROGRAM III- PART 4
50 GRAPHICS 0:POKE 755,0
60 SETCOLOR 2,0,0
70 PMB=PEEK(106)-16
80 POKE 54279,PMB
90 PMBASE=PMB*256
100 FOR J=0 TO 255:POKE PMBASE+1024+J,
0:NEXT J
110 FOR J=0 TO 86:READ A:POKE 1536+J,A
:NEXT J
120 FOR J=0 TO 25:READ A:POKE PMBASE+J
,A:NEXT J
130 POKE 559,62
140 POKE 704,204
150 POKE 712,34
160 POKE 53277,3
170 HORIZ=130:VERT=140
180 S=STICK(0):RESTORE
190 IF S=11 THEN HORIZ=HORIZ-1
200 IF S=7 THEN HORIZ=HORIZ+1
210 IF HORIZ<48 THEN HORIZ=48
220 IF HORIZ>202 THEN HORIZ=202
230 POKE 53248,HORIZ
240 IF S=13 THEN VERT=VERT+1
250 IF S=14 THEN VERT=VERT-1
260 IF VERT<32 THEN VERT=32
270 IF VERT>212 THEN VERT=212
280 A=USR(1536,PMBASE,PMBASE+1024+VERT
,13)
290 A=USR(1536,PMBASE+13,PMBASE+1024+V
ERT,13)
310 POSITION 6,20:? "VERTICAL POSITION
   =   ←←←";VERT
320 POSITION 6,21:? "HORIZONTAL POSITI
ON =   ←←←";HORIZ
330 GOTO 180
340 REM *** M/C VERTICAL ROUTINE **
350 DATA 104,201,3,208,81,104,133,225,
104,133,224,104,133,227,104,133,226,10
4,133,229
360 DATA 104,133,228,169,0,133,230,133
,231,168,177,224,145,226,24,169,1,101
370 DATA 224,133,224,169,0,101,225,133
,225,24,169,1,101,226,133,226,169,0,10
1,227,133,227,24
380 DATA 169,1,101,230,133,230,169,0,1
01,231,133,231,24,165,228,197,230,208,
206,165
390 DATA 229,197,231,208,200,96
400 REM *** SHAPE DATA ***
410 DATA 0,40,146,214,254,238,254,238,
186,170,56,16,0
420 DATA 0,40,16,16,56,40,56,40,56,40,
56,16,0
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	12877	20	14842	30	12666
35	12877	40	12827	50	4801
60	2730	70	2770	80	2866
90	2903	100	7736	110	7544
120	8183	130	1973	140	2090
150	1938	160	2136	170	3601
180	3983	190	5205	200	5086
210	5016	220	5207	230	3164
240	4854	250	4865	260	4570
270	4808	280	7365	290	7568
310	9328	320	9632	330	1632
340	5817	350	12129	360	10715
370	13216	380	12068	390	4275
400	3666	410	7676	420	6298

Program III

shape data is not initially loaded into the player data area, but is stored in the unused portion of the player missile area by line 120.

Twenty-six numbers are read, which are made up of two 13 number shapes. The first is the familiar shape of the bug seen in Programs I and II, and the second looks like the bug without its wings.

The machine code routine is loaded into page 6. Addresses 1536 to 1792 – page 6 – are not generally used when Basic programs are running, so can be used as an alternative location for storing machine code routines, as long as these do not exceed 256 bytes in length.

Again it is not necessary to understand how the machine code routine is written. What the routine does is transfer the contents of a specified area of memory to another area of memory. This can have many applications, but it is ideal for use with the player missile graphics system. The format to access the routine is:

A=USR (machine code address, from address, to address, number of bytes)

Line 280 uses this routine to transfer the contents of the first 13 bytes above PMBASE to the appropriate area within the player 0 data area. Once again, as in Program II, the vertical position is decided by the variable *VERT*.

Line 290 then takes the next 13 bytes above PMBASE and stores them in the same place within the player 0 data area.

The effect is to display the bug shape on the screen, immediately followed by the shape of the bug without its wings to give the illusion of flapping wings. However this type of shape-swapping animation is not restricted to two shapes. Using more than two can create much more sophisticated animation – figures walking, or Pacmen gobbling for example.

Whether you use this routine or those in Program II is a matter of personal preference. I prefer the Program III routine because, although it is longer – 81 bytes as against 42 for the other two – it is more adaptable.

Try changing Program III by altering the shape data, or including more than two shapes to create your own animation epic.

● *So far, to keep things simple, I have shown how to display and animate one shape at a time. Next month we will look at how to display more than one player, and at how players and playfields can interact with each other.*

Controlling mains appliances

The accent is on safety in Part 3 of LEN GOLDING's series on using your Atari to control devices

LET'S give your computer the power to control mains appliances. It can be operated directly from the keyboard, by a Basic program, or by external sensors such as light or heat detectors.

There are two independent channels, expandable to four, and each channel can handle 750 watts. For now we'll look at the electronics and theory of operation. Next month we'll describe the practical construction and programming.

Safety is our first consideration because, no matter what design is used, the control box must have a mains cable going in at one end and a joystick lead coming out of the other.

If ever the twain should meet, your computer – or at very least its PIA chip – will rapidly depart this life, and may attempt to take you along with it.

This design has two separate stages of protection – an opto isolator on the input circuit, and mechanical relays to handle the mains voltage outputs.

Let's look at the opto-isolator first. Figure I shows in schematic form how it works – you may recognise the symbols from last month. It has two components, housed together in a light-proof package. The input is a conventional light-emitting diode and the output is a phototransistor which switches off in darkness and on when illuminated.

The only link between input and output is a beam of infra red light, and there's no way that high voltages can cross the gap. Your computer sees only the LED side – all the dangerous work is done by circuitry which it never needs to know about.

Since our controller has two channels we need two opto-isolators, and for convenience we've used a dual type which has everything contained in a single 8 pin package.

A second level of mains isolation is achieved by using mechanical relays to do the actual switching. Relays come in many shapes and sizes, but they all work on the same principle – see Figure II.

A coil of fine wire generates a magnetic field when current flows through it, and the magnetic attraction is used to operate one or more sets of switch contacts. The coil uses little power and can operate on low voltages, but the switch contacts can handle much higher voltages and currents.

Since the coil is heavily insulated from the switch contacts, mains voltages cannot get through to the low-voltage lines.

Figure III shows the circuit for the complete mains controller, with its three distinct stages. Stage 1 is the LED circuitry which connects to the computer via a joystick port, and operates on power from pin 7 (+5V).

Control signals are taken from pins 1 and 2 via resistors R1 and R2, to the base leads of TR1 and TR2 where they are amplified and made to drive LEDs A and B inside the opto-isolator. Resistors R3 and R4 limit the current through each LED to around 8mA.

The two jacks are optional – they connect to the joystick port's analog inputs, so you can use external sensors – like light detectors or central heating thermostats – to control the switching action.

Stage 2 operates on a nominal 12V DC from transformer T1. The power supply is not critical, so the circuit uses a simple bridge rectifier –BR1 – and smoothing capacitor – C1. The output from this network is around 14V when no load is connected, falling to 12V or so when the maximum current – about 500mA – is drawn.

An auxiliary output is provided on the terminal block so that you can tap this supply for other purposes if you wish.

When phototransistor A switches

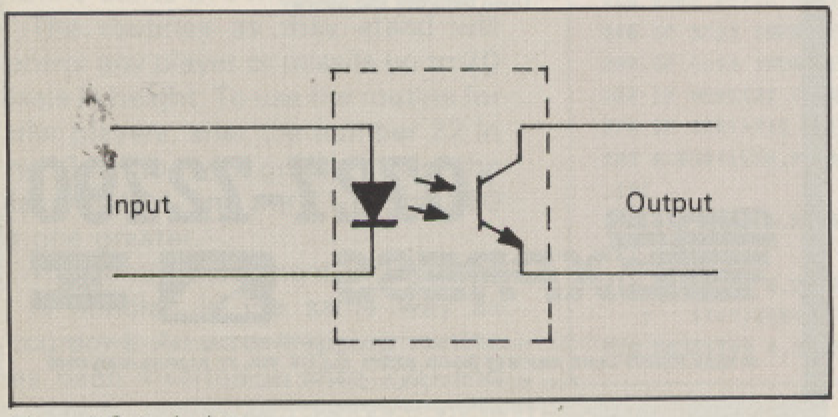


Figure I: Opto-isolator

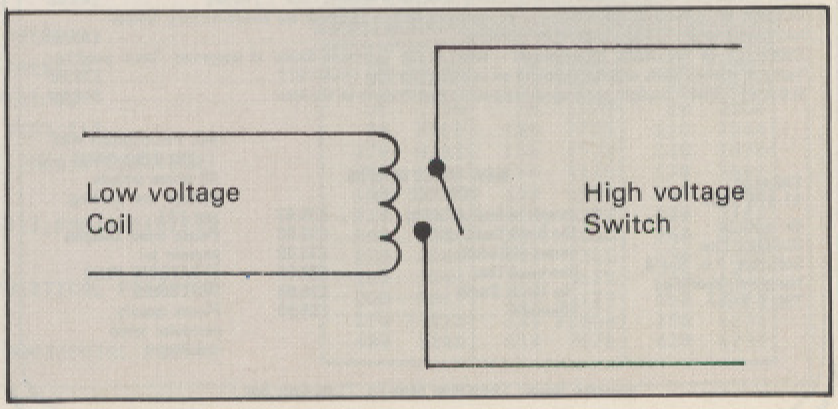
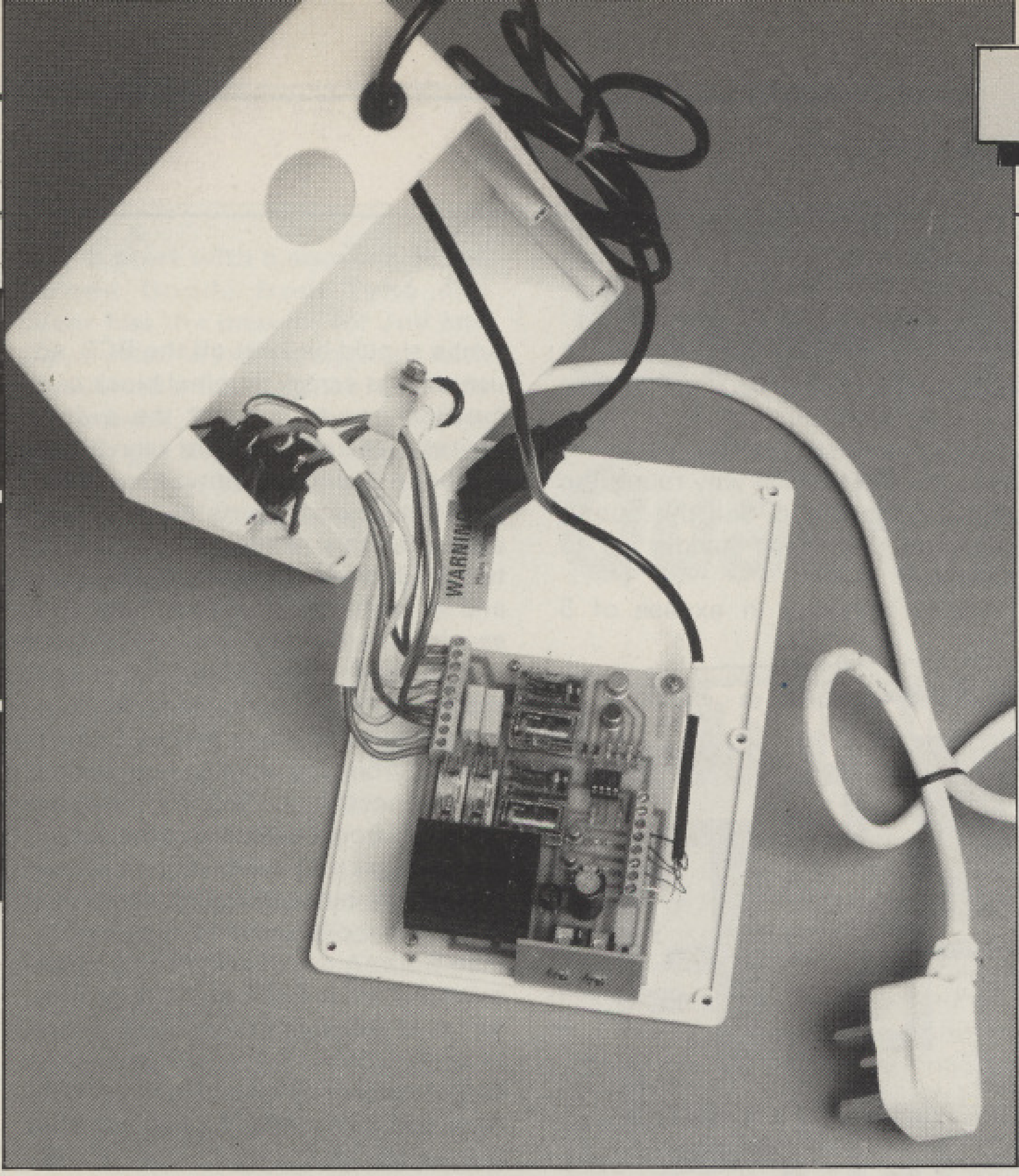


Figure II: Mechanical relay



on its collector voltage falls towards 0V, causing TR3 to switch on. Current therefore flows through the coil of Relay 1, and switch SW1 operates. The same happens with TR4, Relay 2 and SW2 when phototransistor B is activated. Diodes D1 and D2 are included to suppress the voltage spikes which relay coils tend to generate.

Stage 3 is the 240V AC section containing the two relay switches, each with a capacitor across its contacts to suppress sparking and mains interference. You can see that if everything is wired up correctly there is no electrical path from the mains supply to the computer.

Even if stage 2 were to become live – for example after an insulation breakdown in the relays or transformer – the opto-isolator still provides protection.

A printed circuit board is used to hold all components as this greatly simplifies construction. If you have facilities to make your own, the foil pattern is shown in Figure IV with the drilling schedule in Figure V.

If you don't fancy making one yourself it's a lot easier to buy the commercially produced board from RH design – see details in the panel – especially since this comes drilled and tinned ready for use.

The basic design will suit most

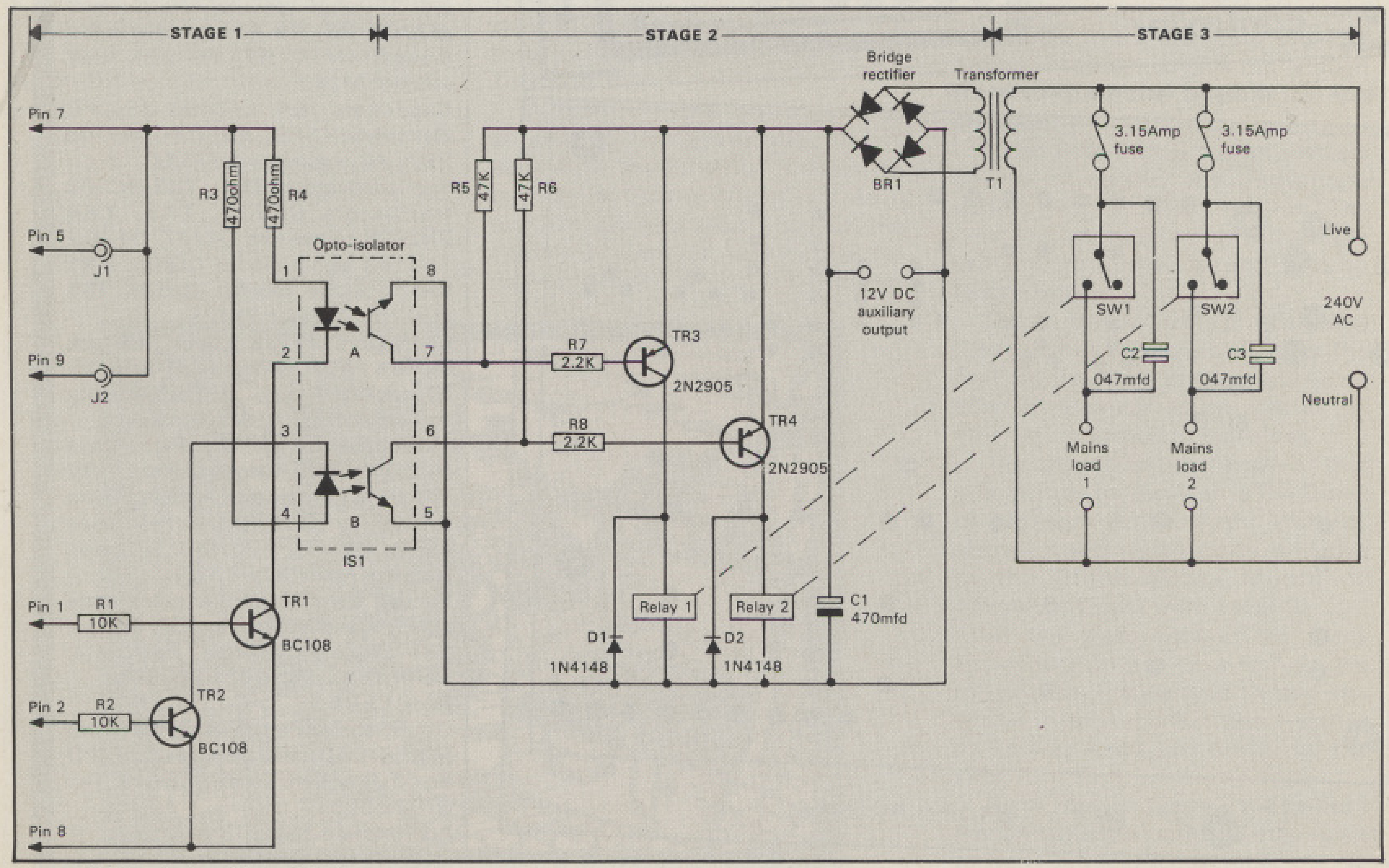


Figure III: Circuit of mains controller

domestic applications, and it can easily be adapted to handle specialised jobs. For example, you could use a different type of relay: it won't fit on the PCB, but leads to the coil can be taken from points A and B – Relay 1, or C and D – Relay 2, which are marked on the board.

You could drive two or even three relays simultaneously from each output should your application demand more current or a more complex switch configuration. It doesn't matter which way round the coils are connected, and the output transistors can each handle up to 500mA.

Mains currents in excess of 5 Amps should be kept off the PCB, so use a large screw terminal block or a junction box to connect the switch contacts of any off-board relays.

There is enough power available from the joystick ports to drive two extra channels, making four in all. Use two PCBs and connect joystick pins 3 and 4 in place of 1 and 2 on the second board.

The specified transformer will supply enough current for all four channels, so you can omit T1, BR1 and C1 from the second board, and just connect the 12V and 0V output terminals from one board to the other.

If you plan to drive several relays from each output ensure that their combined coils will not draw more than 500mA or you will need a more powerful off-board transformer. The bridge rectifier can handle 1.5 Amps at up to 35V.

● *Next month we'll cover the constructional details, testing and programming.* ■

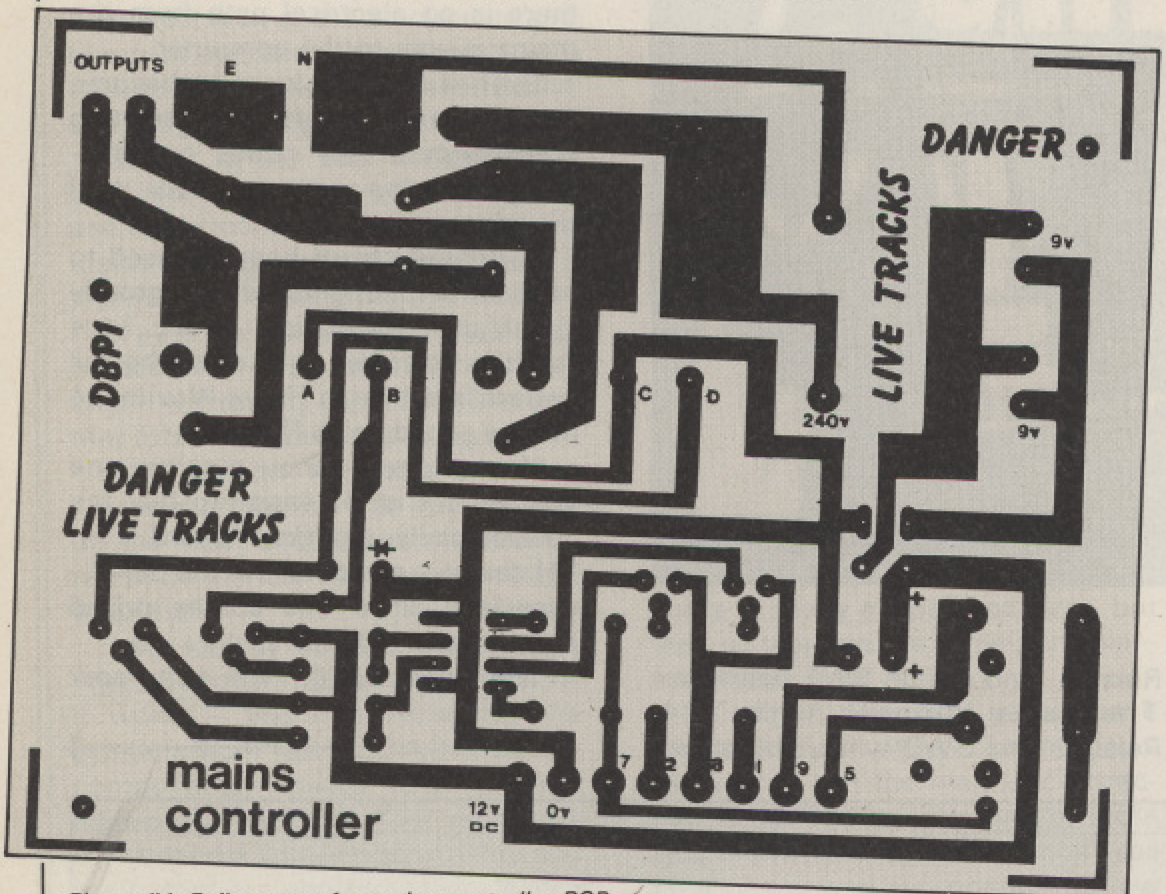


Figure IV: Foil pattern for mains controller PCB

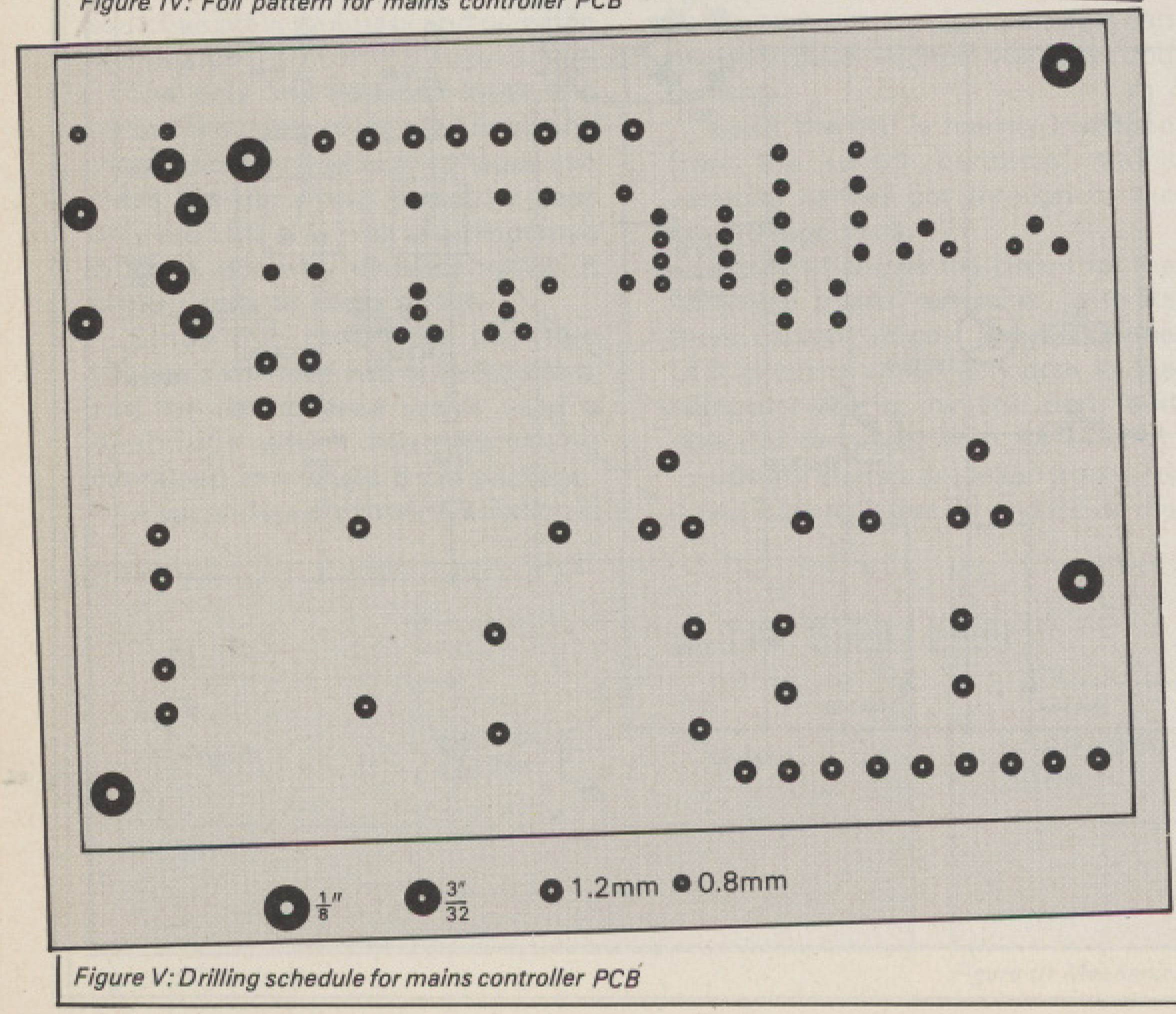


Figure V: Drilling schedule for mains controller PCB

PARTS LIST

Resistors: **R1, R2** 10k (brown/black/orange) *Maplin order code M10K,* **R3, R4** 470ohm (yellow/violet/brown) *M390R,* **R5, R6** 47K (yellow/violet/orange) *M47K,* **R7, R8** 2.2K (red/red/red) M2K2.

Capacitors: **C1** 470mfd 25v PC electrolytic *FF16S,* **C2,** C3 0.047mfd 250v AC suppressors *FF55K.*

Semiconductors: **TR1, TR2** BC108 transistors *QB32K,* **TR3, TR4** 2N2905 transistors *QR17T,* **D1, D2** 1N4148 signal diodes *QL80B,* **BR1** W005 bridge rectifier *QL37S,* **IS1** dual opto-isolator *YY62S.*

Connectors: **J1, J2** 3.5mm PCB jack sockets *FK02C* (optional), 1 8pin DIL IC socket *FJ63T,* 2 Euro facility chassis sockets *HL42V* (optional).

Miscellaneous: 2 12V Flat relays *HY20W,* 1 PCB mains transformer 9V *YJ53H,* 2 Chassis fuse holders 20mm *RX49D,* 2 3.15 anti-surge fuses 20mm *RA11M,* 1 Joystick extension lead (eg Tandy 276-1978).

Printed circuit board – order code *DBP1* – available from R.H. Design, 137 Stonefall Avenue, Harrogate, North Yorks. Tel: 0423 508359. Price £3.95.

Other components available from Maplin Electronic Supplies Ltd, PO Box 3, Rayleigh, Essex SS6 8LR. Tel: 0702 552911.

Approximate cost £18 plus case.

Going bats over Quasimodo

By Brillig

LET'S start with a success story. Darren Dodds from Tyne and Wear has the answer for Joy and Dave who were struggling with Quasimodo from Synsoft a little while back. They wanted to know how to get the second jewel back to its casing. Well here's how.

Come back after getting the jewel and climb down the ladder to the platform. From here you then jump onto the first rope in the series of three to the left, but you must not jump to the next rope until there is a gap in the bats.

The gap will appear after 10 bats and you can then proceed. Jump to the next rope and climb immediately to avoid being killed by the pesky bats. You can then jump across to the next rope when there is another gap.

Do not jump across to the last rope until a bat flies up behind you. Then jump to the next rope, go down and jump to the next ladder. You then do exactly the same for the next layer.

So there you are, it was as simple as that. Darren signs himself as a newcomer to *Atari User,* and a very valuable one at that if I may say so.

Joy and Dave can now attempt to get the third jewel, while I try to find out how Darren can progress after getting the skeleton from the horse in English Software's Mediator. Perhaps Joy and Dave know the solution.

Two people are stuck on The Pay-Off from Bignose/Atari in exactly the same place. They are both keeping each other company on top of the fire escape having disabled the alarm, yet they are unable to get through the window without disturbing the guard inside.

Messrs Purviss and Hillman are desperate to solve this one for their sanity, and in Mr Purviss's case for the sake of his future marriage.

To get past this obstacle you must remember that a jewel thief requires sticky fingers, and this may lead you to a very professional method of stopping the glass from crashing into the bank and waking the dozy guard inside.

Of course you will still need to find a way of getting the glass from the window frame, so you may have to read more into this solution than is at first apparent.

Nigel Burton has come up with the answer to my question on Hitch Hikers Guide to the Galaxy, and the strange vocabulary identified by the Zorktools kit.

Wimbgu is the equivalent of screaming. However Woonbe is apparently the writer of a slimming guide book, Galaxia Woonbeam. As in all instances you should consult the source of infinite knowledge for further details. A large T-shirt for your help is on its way Nigel, with my thanks.



E Myskow also contributed a neat little drawing of the Wimbgu of Woonbe County which although not the winner, was a worthy entry. Mr Myskow is also struggling to get past Tarzan in Morden's Quest from Melbourne House.

He assures me that he will persevere to solve this game, and I can tell him that he is closer to solving it than he thinks. In this game persistence will be rewarded time and time again.

For this clue, and a comprehensive map of the game, I am indebted to Peter Dean. The map is laid out very clearly and, as Peter comments, the password is the only obscure part of Morden's Quest.

From the map I see that you ought to be able to trace a route avoiding Tarzan. That should give me enough time to find the answer to the question.

I also note from a previous letters column an enquiry about adventure writing programs for the Atari. The only known program is Adventure Writer from Codewriter Inc, who no longer trade.

Gilsoft, from who the program was licenced, has no plans to release The Quill for the Atari, so there will be no flood of amateur adventures as on other more fortunate machines.

The only adventure I know of that is so written for the Atari is The Quest of Abraham Smee. Andy Warwick advised me of its existence, and also of the Glitch of the Month, in Adventure Quest from Level 9.

At the glass door in the Black Tower you do not have to hold the Mist Stone, merely type IN and you will be there. A medium size T-shirt is on its way Andy, and thanks for the info.

Sorry I couldn't review the games I mentioned last month, but they never arrived! Better luck next time. ■



By
STEWART BULLOUGH

OUR hero in this game is Frank, a greedy little fellow whose main aim in life is to collect and eat as much fruit as possible.

To this end you must guide him around eight different levels, each a little harder than the last, until he has devoured all of the fruit that lies scattered around.

Your time is limited though, and as you play you will see the timer at the bottom of the screen tick away relentlessly. You must find the fastest and safest route around each level in order to complete it before your time runs out.

Frank is moved left, right, up or down by moving the joystick in the appropriate direction. He can also jump by holding down the trigger button as you move the joystick. However he can only jump to something which is on the same level as he is.

If Frank can get right to the edge of a platform he can often jump that little bit further, and there are many shortcuts to be found by using this method.

Scoring is very straightforward – for each piece of fruit collected you get 10 points, and each time unit remaining upon completion of a level will gain you a bonus of 100 points.

After you've completed all eight levels you go back to level one at a higher difficulty setting.

There are four difficulty levels, and you can choose them from the main title screen by using the Select button. The higher the level, the less time you will get to finish each screen.

The machine code PMG routine was written by Anthony Hughes. This little routine is really good, and can store up to 48 different frames, so credit where credit's due for a great subroutine.

After typing in the listing check it with the Get-It-Right! program – see Page 33 – and when it is all correct SAVE yourself a copy and simply type RUN.

The initialisation will take just over a minute, so be patient and wait for the game to begin.

```
0 REM ********************************
1 REM *   FRANK THE FRUIT FIEND     *
2 REM *          by                 *
3 REM *    STEWART  BULLOUGH        *
4 REM *         from                *
5 REM *   Hadfield , Derbyshire     *
6 REM *          for                *
7 REM *  ATARI USER, August 1986    *
8 REM *                             *
9 REM ********************************
10 GOSUB 29000:POKE 559,62:POKE 710,4:GOSUB 3050
500 S=STICK(0)
505 IF S=7 THEN H=H+2:D=0:GOTO 535
510 IF S=11 THEN H=H-2:D=1:GOTO 535
520 IF S=13 AND A<>0 OR S=14 AND A<>0 THEN 540
530 GOSUB 4000:GOTO 500
535 IF STRIG(0)=0 THEN GOSUB 4000:GOSUB 700:GOTO 500
537 GOTO 550
540 IF S=13 THEN GOSUB 1000:GOTO 545
543 GOSUB 1100
545 IF ZZ=43 OR ZZ=171 THEN GOSUB 850
547 GOTO 500
550 W=USR(LOC,2,H,V,2):W=USR(LOC,1,H,V,A+D):W=USR(LOC,0,H,V,L+D)
560 IF L=3 THEN GOSUB 1000:GOSUB 1050
570 IF L=7 THEN POKE V0,255:POKE V0,0:GOSUB 4000
600 IF A=9 THEN A=0:L=3:GOTO 500
610 IF A=0 AND C<>1 THEN A=5:L=7:C=1:GOTO 500
620 IF A=5 THEN A=0:L=3:GOTO 500
630 IF A=0 THEN A=9:L=7:C=0:GOTO 500
699 REM ** JUMP **
700 OA=A:OL=L:A=9:L=11:N=0:JMP=1:FOR V=V TO V-10 STEP -2:GOSUB 820:GOSUB 810:NEXT V
705 FOR V=V TO V+10 STEP 2:GOSUB 820:GOSUB 810:NEXT V:A=0:L=3:GOSUB 820:GOSUB 820:GOSUB 810:POKE V1,0:GOSUB 1000
710 IF OL=7 THEN GOSUB 1050
715 A=OA:L=OL:JMP=0:RETURN
810 W=USR(LOC,2,H,V,2):W=USR(LOC,1,H,V,A+D):W=USR(LOC,0,H,V,L+D):POKE V1,TU(N):N=N+1:RETURN
820 IF D=0 THEN H=H+1
825 IF D=1 THEN H=H-1
830 RETURN
849 REM ** CLIMB **
850 A=17:GOSUB 890
855 IF A=17 THEN A=13:GOSUB 880
860 IF A=13 THEN A=17:GOSUB 880
865 IF A=17 THEN A=15:GOSUB 880
870 IF A=15 THEN A=17:GOSUB 880:GOTO 855
880 IF S=13 THEN W=USR(LOC,1,H,V,A):W=USR(LOC,2,H,V,2):W=USR(LOC,0,H,V,A+1):GOTO 890
885 W=USR(LOC,0,H,V,A+1):W=USR(LOC,2,H,V,2):W=USR(LOC,1,H,V,A)
890 S=STICK(0)
895 GOSUB 4000:IF S<>13 AND S<>14 THEN 920
900 IF S=14 THEN GOSUB 1100:IF ZZ=43 OR ZZ=171 THEN V=V-4:RETURN
905 IF S=14 THEN 915
910 GOSUB 1000:IF ZZ=43 OR ZZ=171 THEN V=V+4:RETURN
915 POP :A=9:L=7:GOSUB 1050:GOTO 500
920 S=STICK(0):IF A=17 THEN IF S=7 OR S=11 THEN POP :A=9:L=7:GOTO 500
925 GOTO 895
999 REM ** LOCATES **
1000 LOCATE INT((H-46)/4+D/2),INT(V/8-2),ZZ:IF ZZ>168 THEN RETURN
1010 IF ZZ>40 AND ZZ<59 THEN RETURN
1015 IF JMP=1 THEN D=ABS(D-1):JMP=0:GOTO 1000
1020 GOTO 2000
1050 X2=INT((H-46)/4):Y2=INT(V/8-4):LOCATE X2,Y2,YY:IF YY<>32 AND YY<>160 AND YY<>43 AND YY<>171 THEN 1060
1055 RETURN
1060 IF YY<>169 AND YY<>41 AND YY<>170 AND YY<>42 THEN 1070
1065 RETURN
1070 SC=SC+10:COLOR 32:POKE V0,20:PLOT X2,Y2:POKE V0,60
1080 FG=FG+1:POKE V0,0:IF FG=NF THEN GOSUB 5000:LEV=LEV+1:IF LEV=9 THEN LEV=1:LIV=LIV+1:IF DIF<3 THEN DIF=DIF+1
1085 IF FG=NF THEN FG=0:GOSUB 3000:GOSUB 8000:POP :GOTO 500
1090 RETURN
1100 X2=INT((H-46)/4):Y2=INT(V/8-2.5):LOCATE X2,Y2,ZZ
1110 RETURN
1999 REM ** DIE **
2000 POP :A=19:N=0:FOR V=V-4 TO 200 STEP 4
2010 GOSUB 2100
2020 IF N<36 THEN POKE V1,GB(N):N=N+1
2025 A=A+3:IF A=31 THEN A=19
2030 FOR T=0 TO 10:NEXT T:NEXT V:POKE V1,0:GOSUB 2110:YY=184
2040 FOR V=196 TO YY STEP -4:GOSUB 2100:NEXT V
2050 FOR V=YY+4 TO 200 STEP 4:GOSUB 2100:NEXT V:GOSUB 2110:YY=YY+4:IF YY=200 THEN 2080
2060 GOTO 2040
2080 FOR T=0 TO 300:NEXT T:LIV=LIV-1
2090 FL=1:GOSUB 3000:GOSUB 8000:GOTO 500
2100 W=USR(LOC,2,H,V,A+1):W=USR(LOC,1,H,V,A):W=USR(LOC,0,H,V,A+2):RETURN
2110 FOR T=70 TO 10 STEP -20:SOUND 2,T,8,15:NEXT T:SOUND 2,0,0,0
2115 POKE V0,140:POKE V0,0:RETURN
2999 REM ** SCORES **
3000 GOSUB 3400:POKE 710,4
3010 IF LIV=0 THEN 3050
3020 POKE DL+9,2:POSITION 13,4:? "SCORE ␛→ ";SC:GOSUB 3200
3025 POKE DL+15,2:POSITION 13,10:? "LIVES ␛→ ";LIV:GOSUB 3200
3030 POKE DL+21,2:POSITION 13,16:? "LEVEL ␛→ ";LEV:GOSUB 3200:POKE V0,0
3035 IF FL<>1 THEN GOSUB 3300
3040 FL=0:FOR T=0 TO 500:NEXT T:POKE 559,0:GOSUB 3400:GOSUB 29810:RETURN
3050 IF SC>HSC THEN HSC=SC
3055 POKE 708,54:POKE 709,186:POKE 711,246
3060 POKE DL+6,2:POSITION 1,1:? "YOUR SCORE ␛→ ";SC:POSITION 21,1:? "HIGH SCORE ␛→ ";HSC:GOSUB 3200
3065 POKE DL+8,2:POSITION 6,3:? "WRITTEN by STEWART BULLOUGH":GOSUB 3200
3070 POKE DL+23,2:POSITION 8,18:? "PRESS START FOR NEW GAME":GOSUB 3200
3075 POKE DL+25,2:POSITION 8,20:? "SELECT    DIFFICULTY ␛→ ";DIF:GOSUB 3200:POKE V0,0:RESTORE 9000
3080 FOR C=5 TO 9:FOR R=1 TO 38:READ COL:COLOR COL+31:PLOT R,C:READ COL:COLOR COL+31:PLOT R,21-C:NEXT R:NEXT C
3085 IF PEEK(53279)=6 THEN 3105
3090 IF PEEK(53279)=5 THEN DIF=DIF+1:GOTO 3097
3095 GOTO 3085
3097 IF DIF=4 THEN DIF=0
3100 POSITION 31,20:? DIF:GOSUB 3200:POKE V0,0:GOTO 3085
3105 POKE 559,0:GOSUB 3400
3110 GOSUB 29810:LIV=3:LEV=1:SC=0:FL=0:GOSUB 8000:POP :GOTO 500
3200 FOR T=12 TO 5 STEP -1:POKE V0,T:NEXT T:RETURN
3300 FOR T=0 TO 100:NEXT T:IF TIM-PT<2 THEN 3320
3310 FOR T=TIM-PT-1 TO 1 STEP -1:COLOR 186:PLOT T,23:GOSUB 3340:NEXT T
3320 COLOR 175:PLOT 0,23:GOSUB 3340:POKE V0,0:POKE 53761,175:RETURN
3340 POKE V0,180:FOR V=175 TO 160 STEP -1:POKE 53761,V:NEXT V
3350 SC=SC+100:POSITION 21,4:? SC:RETURN
3400 COLOR 32:FOR T=22 TO 0 STEP -1:PLOT 0,T:DRAWTO 39,T:NEXT T:RETURN
3999 REM ** TIMER CHECK **
4000 PT=PEEK(19):IF PT=TIM THEN COLOR 175:PLOT 0,23:GOTO 2000
4010 COLOR 186:PLOT TIM-PT,23:RETURN
4999 REM ** LEVEL COMPLETE **
5000 FOR T=0 TO 50:NEXT T:A=31:GOSUB 2100:FOR T=0 TO 15:GOSUB 5100:NEXT T
5010 FOR T=16 TO 27:IF T=16 OR T=22 THEN A=34:V=V-20:GOSUB 2100:FOR TT=0 TO 1:NEXT TT
5020 IF T=17 OR T=23 THEN A=31:V=V+20:GOSUB 2100:FOR TT=0 TO 1:NEXT TT
5030 GOSUB 5100:NEXT T:FOR T=0 TO 15:GOSUB 5100:NEXT T
5040 FOR T=28 TO 37:GOSUB 5100:NEXT T
5050 FOR T=0 TO 20:NEXT T:FOR T=60 TO 40 STEP -2:POKE V0,T:POKE V0,0:NEXT T
5060 H=0:GOSUB 2100:FOR T=0 TO 50:NEXT T:RETURN
5100 POKE V0,CL(T):FOR TT=0 TO 5:NEXT TT:RETURN
7999 REM ** DRAW ROOMS **
8000 POKE 559,0:TRAP 2000:POKE 77,0:RESTORE 8000+LEV*100
8010 READ COL
8020 READ X,Y,X1
8025 IF X=-1 THEN 8010
8030 IF X=-2 THEN 8055
8040 IF COL=169 THEN FOR T=X TO X1 STEP 2:COLOR COL:PLOT T,Y:COLOR COL+1:PLOT T+1,Y:NEXT T:GOTO 8020
8050 IF COL=43 THEN COLOR COL:PLOT X,Y:DRAWTO X,X1:GOTO 8020
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8055 READ NF,COL:FOR T=1 TO NF:READ X,Y
8060 IF X=-1 THEN READ COL,X,Y
8065 COLOR COL:PLOT X,Y:NEXT T:N=0:FG=0
8070 READ H,V,D,C1,C2,C3,C4,TIM,NF:A=0:L=3:GOSUB 810:POKE V1,0:A=9:L=7:TIM=TIM-DIF
8075 POKE 708,C1:POKE 709,C2:POKE 710,C3:POKE 711,C4:COLOR 175:PLOT 0,23
8080 COLOR 174:DRAWTO 39,23:COLOR 186:PLOT 1,23:DRAWTO 38,23:POKE 559,62:FOR T=0 TO 100:NEXT T:S=40:COLOR 172
8090 PLOT 0,23:COLOR 173:FOR T=1 TO TIM-1:POKE V0,5:PLOT T,23:POKE V0,0:S=S-1:NEXT T:POKE 19,0:POKE 20,0:POKE 19,0
8095 RETURN
8100 DATA 43,3,2,13,3,18,23,9,13,18,12,8,13,14,2,3,16,3,8,22,4,6,25,13,18,28,2,4,30,8,13,35,2,8,36,13,18
8110 DATA -1,0,0,169,1,2,2,4,2,9,12,2,13,29,2,34,36,2,37,14,3,15,23,4,28,17,6,22,6,8,11,13,8,16,31,8,36,1,13,4
8120 DATA 7,13,8,10,13,17,21,13,24,26,13,35,37,13,38,1,18,2,4,18,37,-2,0,0
8130 DATA 48,33,2,0,13,0,36,0,25,2,14,6,33,6,7,11,21,11,32,11,7,16,23,16,13,21,29,21,-1,0
8140 DATA 34,4,0,30,0,18,4,6,6,31,6,10,11,24,11,34,11,2,16,19,16,9,21,25,21,-1,0
8150 DATA 35,6,0,32,0,20,4,8,6,14,11,26,11,38,11,15,16,31,16,5,21,21,21,37,21,-1,0
8160 DATA 36,8,0,34,0,23,2,10,6,17,11,28,11,11,16,27,16,1,21,17,21,33,21
8170 DATA 202,200,1,54,186,40,246,17,48
8200 DATA 43,3,7,16,6,2,7,15,2,18,19,18,23,22,3,7,25,12,18,31,8,12,34,17,19,37,3,8,38,8,13,-1,0,0
8210 DATA 169,7,2,14,23,3,24,33,3,36,1,7,2,4,7,9,21,7,24,32,8,37,11,9,14,23,12,24,26,12,27,30,12,31,16,13,19
8220 DATA 33,13,38,2,16,5,11,16,14,30,17,33,15,18,18,20,18,25,34,19,37,-2,0,0
8230 DATA 28,37,7,0,23,1,11,7,19,11,33,11,37,17,-1,0
8240 DATA 38,9,0,34,1,8,5,24,5,23,10,36,11,13,14,-1,0
8250 DATA 39,12,0,36,1,4,5,32,6,27,10,11,14,31,15,-1,0
8260 DATA 40,14,0,1,5,35,6,13,7,17,11,5,14,33,15,-1,0,169,29,3
8270 DATA 50,200,0,246,184,86,52,20,27
8300 DATA 43,2,2,6,3,13,18,4,11,13,5,6,11,13,11,13,18,2,8,20,8,13,24,2,3,34,3,8,36,18,23,37,8,13,-1,0,0
8310 DATA 169,3,2,8,18,2,23,28,3,33,1,6,4,18,8,9,21,8,26,13,13,20,22,13,27,2,18,5,14,18,21,24,18,31,33,18,34
8320 DATA 37,18,38,-2,0,0
8330 DATA 47,33,8,0,20,0,24,6,12,9,25,11,14,16,27,16,-1,0
8340 DATA 34,12,0,22,0,4,4,22,6,15,11,27,11,5,16,19,16,29,16,-1,0
8350 DATA 35,4,0,14,0,32,6,2,11,18,11,32,11,8,16,21,16,31,16,-1,0
8360 DATA 36,6,0,18,0,26,6,7,9,22,11,11,16,24,16,33,16,-1,0
8370 DATA 169,12,2,24,3,32,8,12,11,2,13,32,13,8,18,-1,0,170,14,2,34,8,5,11,7,11,4,13,37,13,11,18
8380 DATA 122,200,0,54,186,40,246,19,33
8400 DATA 43,1,3,23,4,8,9,8,8,14,11,2,3,15,17,19,17,20,18,2,3,18,12,13,21,7,12,22,13,16,25,10,12,27,13,19
8410 DATA 28,7,8,32,8,10,38,2,19,-1,0,0
8420 DATA 169,9,2,10,20,2,21,23,2,26,32,2,33,11,3,14,16,3,17,9,8,10,13,8,14,17,8,20,28,8,31,34,10,37,19,12,22
8430 DATA 9,13,10,12,13,13,28,13,29,2,14,3,7,14,8,33,15,36,21,16,22,2,18,5,32,18,33,26,19,27,37,19,38,1,2,2,-2,0,0
8440 DATA 37,37,2,0,12,1,21,0,33,0,-1,0,38,5,0,14,1,23,0,36,0,-1,0,39,7,0,16,1,25,0,-1,0,40,10,0,18,0,30,0,-1,0
8450 DATA 169,5,2,36,2,18,3,27,7,4,9,25,12,32,13,37,15,8,18,15,19,22,20,-1,0
8460 DATA 170,7,2,30,2,23,7,25,9,32,10,18,13,16,17,11,18,20,19,31,19,17,20,24,20
8470 DATA 86,200,1,246,184,86,52,13,14
8500 DATA 43,1,15,18,2,2,5,2,9,11,4,5,9,4,11,13,9,18,23,10,2,11,10,13,18,17,3,4,19,2,3,21,15,18,22,4,15,27,2,4
8510 DATA 28,15,19,35,2,6,35,11,12,36,6,7,38,7,12,-1,0,0
8520 DATA 169,3,2,4,20,2,21,28,2,33,18,3,19,16,4,17,23,4,28,2,5,3,30,6,35,36,7,37,3,9,4,2,11,3,9,11,12,24,11,25
8530 DATA 31,11,34,35,12,36,4,13,9,22,15,27,1,18,2,7,18,8,10,18,11,14,18,15,17,18,18,21,18,22,26,19,31,33,19,34
8540 DATA 37,19,38,-2,0,0
8550 DATA 33,33,33,0,18,1,24,2,2,7,29,9,31,17,-1,0,34,2,0,20,0,30,4,31,9,6,11,24,13,34,17,-1,0
8560 DATA 35,4,0,29,0,32,4,17,9,33,9,26,13,7,16,37,17,-1,0,36,31,0,16,2,24,9,36,10,2,13,26,17,-1,0
8570 DATA 169,13,4,17,11,38,12,-1,0,170,22,7,29,11,2,15
8580 DATA 46,200,0,54,186,40,246,19,27
8600 DATA 43,2,16,20,3,7,8,4,12,16,5,8,12,7,2,8,8,18,20,10,14,18,12,10,14,14,3,10,14,18,19,20,19,23,22,2,8
8610 DATA 26,9,19,29,10,11,30,18,19,34,3,7,36,7,15,38,15,18,-1,0,0
8620 DATA 169,1,2,6,20,2,21,15,4,16,18,4,19,1,7,2,31,7,32,3,8,4,6,8,7,20,8,23,24,9,25,37,9,38,13,10,14,27,10,28
8630 DATA 29,11,30,2,12,3,5,12,6,11,14,12,35,15,36,3,16,4,9,18,10,12,18,13,3
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Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
0	4693	1	13953	2	4222
3	12537	4	4726	5	15294
6	4560	7	15172	8	3803
9	4693	10	8146	500	2006
505	5556	510	5505	520	7142
530	3733	535	8877	537	1631
540	5686	543	1929	545	6077
547	1616	550	11555	560	5970
570	8148	600	5227	610	7318
620	5219	630	5703	699	4061
700	15156	705	19896	710	4169
715	4854	810	16942	820	3024
825	3030	830	1498	849	4466
850	2776	855	4745	860	4745
865	4751	870	6389	880	14856
885	11024	890	2006	895	6792
900	11545	905	2806	910	9203
915	5708	920	11535	925	1669
999	6246	1000	11150	1010	5719
1015	7290	1020	1850	1050	18323
1055	1498	1060	10112	1065	1498
1070	9530	1080	20518	1085	10250
1090	1498	1100	8955	1110	1498
1999	3437	2000	6528	2010	1932
2020	5820	2025	3811	2030	10272
2040	7876	2050	15222	2060	1866
2080	6060	2090	6518	2100	13051
2110	10627	2115	5732	2999	5260
3000	3876	3010	3081	3020	9524
3025	10237	3030	12128	3035	4378
3040	12725	3050	4302	3055	6526
3060	17236	3065	13393	3070	14747
3075	19386	3080	20006	3085	4407
3090	7420	3095	1909	3097	3435
3100	9463	3105	3848	3110	11041
3200	8568	3300	7868	3310	12290
3320	11959	3340	10428	3350	6957
3400	12756	3999	8067	4000	10561
4010	6382	4999	9851	5000	12547
5010	14607	5020	12141	5030	9617
5040	5887	5050	12751	5060	8034
5100	8437	7999	7535	8000	9204
8010	1710	8020	2105	8025	2944
8030	2970	8040	18611	8050	11256
8055	6884	8060	4674	8065	7102
8070	14361	8075	11965	8080	19565
8090	20869	8095	1498	8100	14814

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
8110	15558	8120	10473	8130	12597
8140	11186	8150	11447	8160	10072
8170	5417	8200	13717	8210	15346
8220	10769	8230	7132	8240	7317
8250	7541	8260	8589	8270	5175
8300	14501	8310	15478	8320	3222
8330	7868	8340	9019	8350	9015
8360	8316	8370	13492	8380	5391
8400	15351	8410	5392	8420	15527
8430	16319	8440	15518	8450	10651
8460	11226	8470	5186	8500	15530
8510	7735	8520	15674	8530	15810
8540	3223	8550	13317	8560	14001
8570	7616	8580	5163	8600	15003
8610	9203	8620	15772	8630	15632
8640	5279	8650	15556	8660	10421
8670	8995	8680	14422	8690	5453
8700	15853	8710	7783	8720	14931
8730	13229	8740	11182	8750	14822
8760	10375	8770	11632	8780	12658
8790	5439	8800	15996	8810	10704
8820	15153	8830	10609	8840	14844
8850	11982	8860	12175	8870	13341
8880	5194	9000	15187	9005	8253
9010	15157	9015	8194	9020	15187
9025	8223	9030	15145	9035	8206
9040	15195	9045	8237	28999	9799
29000	13659	29005	20091	29010	5735
29015	15633	29020	14158	29030	14204
29040	11381	29048	24782	29049	6274
29050	13335	29051	13834	29052	12940
29053	13107	29054	12999	29055	12952
29056	14035	29057	14211	29058	7264
29099	9879	29100	13975	29110	7180
29120	6841	29125	9170	29140	12774
29145	7611	29150	9374	29155	8308
29160	9210	29165	6181	29170	8782
29175	8639	29180	8031	29185	10865
29190	9130	29195	8866	29200	10681
29205	11242	29210	6171	29220	12139
29230	11267	29599	10334	29600	2983
29610	12285	29620	12738	29625	8180
29630	7715	29640	8384	29650	8669
29660	9159	29670	14416	29680	13294
29690	8376	29780	7801	29790	7967
29799	9293	29800	4453	29810	10742



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1,18,32,14,19,15,17,19,18,22,19,23
8640 DATA 25,19,30,1,20,4,6,20,9,-2,0,
0
8650 DATA 51,37,28,0,9,2,5,6,38,7,28,8
,19,12,34,16,4,18,-1,0,38,20,0,30,0,13
,1,20,6,30,9,2,10,22,12,38,13,12,16
8660 DATA 23,17,-1,0,39,2,0,24,0,37,1,
16,2,24,7,7,10,24,12,15,17,28,17,-1,0
8670 DATA 40,4,0,26,0,18,2,1,5,31,5,10
,12,28,12,31,16,17,17,-1,0
8680 DATA 169,26,2,30,2,13,3,34,7,7,12
,19,14,24,14,34,18,-1,0,170,24,2,28,2,
37,3,9,4,22,14,28,14,38,18
8690 DATA 146,200,1,246,184,86,52,27,3
6
8700 DATA 43,1,2,7,1,13,19,6,6,7,7,12,
13,9,19,20,10,5,6,11,19,20,12,4,5,15,1
2,13,15,19,20,17,7,8,17,20,21,19,5,7
8710 DATA 25,4,21,28,21,23,32,2,4,34,2
,14,37,14,21,-1,0,0
8720 DATA 169,30,2,31,3,4,4,10,4,11,13
,4,14,23,4,24,32,4,33,12,5,13,26,5,27,
9,6,10,18,7,19,16,8,17,23,8,24
8730 DATA 32,8,33,26,9,27,23,12,24,32,
13,33,33,14,36,23,16,24,26,17,27,35,18
,36,2,19,3,-2,0,0
8740 DATA 63,33,36,0,10,2,19,2,32,6,27
,7,12,11,36,12,23,14,3,17,14,17,31,19,
-1,0
8750 DATA 34,12,2,23,2,38,5,8,11,32,11
,27,15,7,17,17,18,-1,0,35,3,2,14,2,27,
3,16,6,4,10,27,11,35,16,10,18
8760 DATA 20,19,-1,0,36,5,0,30,0,18,3,
23,6,37,9,2,10,23,10,12,17,22,19,-1,0
8770 DATA 169,5,2,18,5,1,7,37,11,2,12,
16,12,8,13,12,19,10,20,20,21,25,21,37,
21,-1,0
8780 DATA 170,36,2,19,4,6,7,38,7,4,12,
20,12,12,13,27,13,32,17,7,19,14,19,16,
20,22,21,31,21
8790 DATA 178,200,1,54,186,40,246,30,3
7
8800 DATA 43,1,2,6,1,9,12,3,6,7,3,16,1
7,7,7,9,9,2,20,16,20,23,21,12,15,22,2,
12,24,12,12,26,9,11,26,20,20,27,19,19
8810 DATA 28,18,18,29,12,14,29,17,17,3
5,14,17,35,19,21,36,2,6,38,6,14,-1,0,0
8820 DATA 169,2,2,3,33,2,34,34,6,35,15
,7,16,18,7,19,2,9,3,6,12,7,22,12,23,32
,12,33,24,13,25,27,13,28,4,16,5
8830 DATA 1,17,2,30,17,31,8,20,11,13,2
0,14,27,20,28,26,21,27,36,21,37,-2,0,0
8840 DATA 54,37,25,0,3,4,28,4,16,10,5,
14,29,15,22,18,-1,0,38,5,0,27,0,34,4,7
,5,26,7,1,15,28,16,20,18,-1,0
8850 DATA 39,8,0,16,5,2,10,27,17,13,18
,37,19,-1,0,40,23,0,19,5,24,10,11,18,2
6,18,-1,0
8860 DATA 169,5,2,13,2,23,2,27,2,2,6,2
8,6,26,11,2,12,11,12,35,17,34,19,22,20
,32,20,-1,0
8870 DATA 170,8,2,17,2,25,2,29,2,31,6,
3,7,7,10,16,12,38,14,24,17,30,18,29,19
,20,20,21,21,33,21
8880 DATA 94,200,0,246,184,86,52,23,26
9000 DATA 7,5,7,1,7,1,1,1,3,2,3,1,3,2,
1,1,2,3,2,3,2,3,1,1,5,7,1,1,1,1,5,5,1,
1,7,1,1,1,1,1,7,2,1,1,1,1,1,1,1,3
9005 DATA 1,1,1,7,3,7,3,7,3,1,1,5,2,1,
1,1,2,5,1,1,5,2,5,2,5,1
9010 DATA 7,5,1,1,1,1,1,1,3,2,1,2,3,1,
1,1,2,3,1,1,2,3,1,1,5,7,5,1,1,1,5,5,1,
1,7,1,1,1,7,1,1,2,1,1,1,1,1,1,1,3
9015 DATA 1,1,1,7,1,1,3,1,1,1,1,5,2,1,
1,1,2,5,1,1,5,2,1,1,1,2
9020 DATA 7,5,7,5,1,1,1,1,3,2,3,2,3,2,
1,1,2,3,1,1,2,3,1,1,5,7,1,1,5,1,5,5,1,
1,7,1,7,1,1,1,1,2,1,2,1,1,1,1,1,3
9025 DATA 1,1,1,7,1,7,3,1,1,1,1,5,2,1,
2,5,2,5,1,1,5,2,5,1,1,2
9030 DATA 7,5,1,1,1,1,1,1,3,2,3,1,1,2,
1,1,2,3,2,1,2,3,1,1,5,7,1,1,1,1,5,5,1,
1,7,1,1,1,7,1,1,2,1,1,1,1,1,1,1,3
9035 DATA 1,1,1,7,1,1,3,1,1,1,1,5,2,5,
1,1,2,5,1,1,5,2,1,1,1,2
9040 DATA 7,5,1,5,1,5,1,1,3,2,1,2,3,2,
1,1,2,3,1,1,2,3,1,1,5,7,1,1,1,5,5,5,1,
5,7,1,1,1,1,1,7,2,1,2,1,2,1,1,1,3
9045 DATA 1,1,1,7,1,7,3,7,1,1,1,5,2,1,
1,1,2,5,1,1,5,2,5,2,5,1
28999 REM ** DIMS & PMG M.C. **
29000 ? "KINITIALIZING FOR 1.25 mins":
DIM TU(13),GB(35),CL(37):RESTORE 29010
29005 FOR T=0 TO 12:READ A:TU(T)=A:NEX
T T:FOR T=0 TO 35:READ A:GB(T)=A:NEXT
T:FOR T=0 TO 37:READ A:CL(T)=A:NEXT T
29010 DATA 96,91,0,81,0,72,72,0,0,81,0
,72,0
29015 DATA 0,64,64,60,47,47,0,0,60,60,
53,45,45,0,0,45,45,53,40,40,0,45,45,53
,40,40,0,45,45,53,47,47,60,60,60,0
29020 DATA 53,0,53,0,64,0,53,0,47,0,53
,0,64,0,0,0,64,72,0,0,0,0,64,72,0,0,0,
0,64,0,0,72,64,0,72,0,81,0
29030 POKE 106,PEEK(106)-20:GRAPHICS 0
:POKE 559,0:PMBASE=PEEK(106)+4:PMB=PMB
ASE*256
29040 FOR T=1536 TO 1758:READ A:POKE T
,A:NEXT T:X=USR(1536,PMBASE)
29048 REM ** Machine Code Routine **
          ** by A. HUGHES           **
29049 REM ** M/C DATA **
29050 DATA 104,104,104,141,218,6,24,10
5,4,141,219,6,169,0,162,3,157,200,6,20
2,16,250,169,7,162
29051 DATA 6,160,67,32,92,228,96,169,1
,141,220,6,104,104,104,170,104,104,157
,208,6,104,104,157,212
29052 DATA 6,104,104,157,204,6,169,1,1
57,200,6,169,0,141,220,6,96,173,220,6,
240,3,76,98,228
29053 DATA 162,3,189,200,6,208,6,202,1
6,248,76,98,228,142,216,6,169,0,157,20
0,6,141,221,6,189
29054 DATA 204,6,201,16,16,21,189,204,
6,10,10,10,10,133,205,173,221,6,24,109
,218,6,133,206,76
29055 DATA 152,6,173,221,6,24,105,1,14
1,221,6,189,204,6,56,233,16,157,204,6,
201,16,48,213,76
29056 DATA 127,6,173,219,6,24,109,216,
6,133,204,169,0,133,203,160,255,145,20
3,136,208,251,189,212,6
29057 DATA 133,203,160,0,177,205,145,2
03,200,192,16,208,247,174,216,6,189,20
8,6,157,0,208,24,144,131
29058 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,0,0,0
29099 REM ** SET UP PLAYERS **
29100 POKE 54279,PMBASE:POKE 53277,3:P
OKE 704,70:POKE 705,26:POKE 706,136:PO
KE 623,1
```

```
29110 FOR T=PMB TO PMB+1792:POKE T,0:N
EXT T
29120 FOR T=PMB TO PMB+576 STEP 16:REA
D S,E
29125 FOR Z=T+S TO T+E:READ A:POKE Z,A
:NEXT Z:NEXT T
29140 DATA 0,9,24,24,28,24,16,0,16,16,
16,16,0,9,24,24,56,24,8,0,8,8,8,8,5,9,
24,24,24,24,24
29145 DATA 10,15,24,24,16,16,16,24,10,
15,24,24,8,8,8,24
29150 DATA 0,8,24,24,28,24,16,0,16,24,
12,0,8,24,24,56,24,8,0,8,24,48
29155 DATA 10,15,24,24,60,100,68,102,1
0,15,24,24,60,38,34,102
29160 DATA 0,8,24,24,28,24,16,0,16,48,
32,0,8,24,24,56,24,8,0,8,12,4
29165 DATA 8,11,1,1,31,31,8,11,128,128
,248,248
29170 DATA 0,8,24,24,24,24,88,64,102,2
,2,10,15,28,28,20,20,16,16
29175 DATA 0,8,24,24,24,24,26,2,102,64
,64,10,15,56,56,40,40,8,8
29180 DATA 0,6,24,24,24,24,24,0,102,10
,15,24,24,24,24,24,24
29185 DATA 5,10,24,24,153,219,102,36,9
,13,24,24,24,24,24,12,15,129,129,255,2
55
29190 DATA 0,15,4,4,12,8,8,8,6,6,6,6,8
,8,8,12,4,4,6,9,56,56,56,56
29195 DATA 0,15,96,96,64,64,64,64,64,6
4,64,64,64,64,64,64,96,96
29200 DATA 10,15,36,102,219,153,24,24,
7,11,24,24,24,24,24,5,8,255,255,129,12
9
29205 DATA 0,15,32,32,48,16,16,16,96,9
6,96,96,16,16,16,48,32,32,6,9,28,28,28
,28
29210 DATA 0,15,6,6,2,2,2,2,2,2,2,2,2,
2,2,2,6,6
29220 DATA 0,9,24,24,24,24,24,36,36,36
,36,36,5,9,24,24,24,24,24,10,15,24,24,
24,24,24,24
29230 DATA 0,6,24,24,24,24,24,231,231,
5,9,24,24,24,24,24,7,11,129,129,195,12
6,60
29599 REM ** REDEFINE CH/SET **
29600 STL=PEEK(106)*256
29610 FOR T=0 TO 1023:POKE STL+T,PEEK(
57344+T):NEXT T:POKE 756,STL/256
29620 FOR L=33 TO 47:FOR T=0 TO 7:READ
 A:POKE (L-32)*8+STL+T,A:NEXT T:NEXT L
29625 FOR T=0 TO 7:READ A:POKE 208+STL
+T,A:NEXT T
29630 DATA 8,8,10,10,10,42,168,32,10,8
,20,85,85,85,85,20
29640 DATA 160,32,60,255,255,255,255,6
0,10,34,82,82,82,5,5,5
29650 DATA 80,16,60,255,251,251,255,60
,5,4,40,40,170,170,170,40
29660 DATA 21,17,193,204,12,192,204,12
,132,132,34,34,136,136,32,32
29670 DATA 191,239,251,254,254,248,224
,128,254,251,239,191,191,47,11,2,170,1
30,130,130,170,130,130,130
29680 DATA 170,190,190,191,191,190,190
,170,170,254,254,255,255,254,254,170,1
70,2,2,2,2,2,2,170
29690 DATA 170,130,130,128,128,130,130
,170,170,2,2,0,0,2,2,170
29780 POKE 82,0:POKE 752,1:LOC=1568:LI
V=3:LEV=1
29790 POKE 53761,175:V0=53760:POKE 537
63,168:V1=53762
29799 REM ** SET UP SCREEN **
29800 DL=PEEK(560)+PEEK(561)*256
29810 POKE DL+3,68:FOR T=DL+6 TO DL+28
:POKE T,4:NEXT T:RETURN
```



Tired of typing?

Take advantage of our finger-saving offer on Page 47.

Get it right!

By
André Willey
and Richard Vanner

LAST December we printed an innocent looking little program called Get-It-Right! Since that time the December issue has sold like hot cakes, until we now find that we're completely out of stock.

Since many of you have been writing in asking about Get-It-Right! over the past few months we have decided to reprint it for you, with a couple of extra features.

The purpose of this program is to provide you with an easy way to make certain that you have typed our listings in correctly, and to show you exactly where any errors are located.

Firstly sit down and type in the listing below. If you are using cassette rather than disc you should modify line 1010 as detailed in line 999 of the listing.

Once you're quite sure that you have got it right, SAVE a copy on to your tape or disc. This will be your master Get-It-Right! program.

Now to check a program you have just typed in from an issue of *Atari User,* use the following procedure:

Firstly SAVE a copy of the program you've just typed in on to tape or disc. This is your secure copy, just in case anything goes wrong.

Now create a listed version of the program by typing:

LIST "C:"

or

LIST "D:filename"

Note that the normal filename to use on disc is D:TEST, but you are free to choose your own.

Load your master Get-It-Right! tape or disc into memory with:

CLOAD

or

LOAD "D:GIR.BAS"

Type RUN and the main menu will appear. Option 1 will list a checksum to the screen, option 2 to the printer and 3 will quit the program and return you to Basic.

Enter the name of the file which you listed your new program to. Pressing Return on its own will use the standard filename of C: for cassette, and D:TEST for disc.

Check each of the numbers the computer prints out against the numbers in the Get-It-Right! table in the magazine. Make a note of any lines where the number differs, which will need to be corrected later.

Now reLOAD the saved copy of your program. If the two lists of numbers matched completely you may RUN your program in the sure knowledge that it is as we printed it.

If not, check the problem lines against the listing, and repeat the above process from the first step.

If you are working on a long program you may need to type:

[Control-1]

as the screen fills up to pause the display. Press it again to restart.

A few tips: If the error has occurred on a REM or a PRINT Line it may not be fatal, and your program may run OK.

If it occurs on a line with DATA, or machine code characters – those funny little graphics shapes – make sure that you have corrected the problem *before* you try to run the program.

All that remains for you to do now is type in the listing. For a bit of practice you can even check Get-It-Right! with its own checksum just for good measure. Unless of course you got it wrong . . . ■

```
10 REM ┌──────────────────────────┐
20 REM │      GET IT RIGHT !      │
25 REM ├──────────────────────────┤
30 REM │ Written by Richard Vanner │
35 REM │ Modified by  Andre Willey │
40 REM │                          │
45 REM │   (C) ATARI USER  1986   │
50 REM └──────────────────────────┘
60 DIM HEAD$(100),LINE$(130),LN$(6),SL
N$(10),SCH$(10),SIZE(5),FN$(20)
65 TRAN=1:FLAG=0
70 OPEN #3,8,0,"E:":SETCOLOR 2,0,0:SET
COLOR 1,0,10:POKE 752,1
75 GOTO 5000:REM MAIN MENU
80 GOSUB 1000:REM OPEN FILE
81 POKE 82,0:START=0:TRAN=1:FLAG=0:? "
K       CREATING CHECKSUM DATA...":?
82 LN$=" ":LN$(6)=" ":LN$(2)=LN$
83 SLN$=" ":SLN$(10)=" ":SLN$(2)=SLN$
84 SCH$=" ":SCH$(10)=" ":SCH$(2)=SCH$
85 HEAD$=" ":HEAD$(10)=" ":HEAD$(100)=
HEAD$
95 GOSUB 1040:REM PUT HEADER
100 GOSUB 4000:REM GET LINE NUMBER
105 IF FLAG=1 THEN GOTO 4600
110 GOSUB 4070:REM GET LINE
130 GOSUB 4200:REM TOTAL LINE UP
140 GOSUB 4300:REM FORMAT LN No
145 GOSUB 4400:REM FORMAT CHSUM
150 GOSUB 4500:GOTO 100
999 REM  CASSETTE  USERS CHANGE
         LINE 1010 TO   :-
         IF FN$="" THEN FN$="C:"
1000 PRINT "Give filename to check, or
 hit RETURN":? :? "    Filename";:INPU
T FN$:POKE 752,1:?
1010 IF FN$="" THEN FN$="D:TEST"
1020 OPEN #1,4,0,FN$
1030 RETURN
1040 REM
1050 HEAD$=" LINE CHSUM  LINE CHSUM
LINE CHSUM  ":? #3;HEAD$
1060 HEAD$="┌───────────┬───────────┬──
───────────┐ ":? #3;HEAD$
1070 RETURN
4000 REM  GET A LINE
4005 C=1:TRAP 4100
4010 GET #1,DAT
4020 IF DAT=32 THEN GOTO 4050
4030 LN$(C,C)=CHR$(DAT):C=C+1:GOTO 401
0
4050 LE=C-1:RETURN
4060 REM  CHECK SUM ROUTINE
4070 LINE$=" ":LINE$(1,1)=CHR$(32):C=2
4080 GET #1,DAT:IF DAT=155 THEN LE2=C-
1:RETURN
4090 LINE$(C,C)=CHR$(DAT):C=C+1:GOTO 4
080
4100 FLAG=1:RETURN :REM END OF FILE
4200 REM  TOTAL UP LINE
4210 CHSUM=0:TRAN=1
4240 FOR A=1 TO LE2
4250 CHSUM=CHSUM+ASC(LINE$(A,A))*TRAN:
TRAN=TRAN+1:IF TRAN>5 THEN TRAN=1
4260 NEXT A
4270 RETURN
4300 REM  FORMAT LINE NUM
4310 SLN$="      ":L=VAL(LN$):SIZE=LEN(
STR$(L))
```

```
4312 SLN$(6-SIZE)=STR$(L):RETURN
4360 ? "␛ Data Corrupt !!!␛":END
4400 REM  FORMAT CHSUM 
4410 SCH$="      ":SIZE=LEN(STR$(CHSUM)
)
4420 SCH$(6-SIZE)=STR$(CHSUM):RETURN
4470 ? "␛ Data Corrupt !!!␛":END
4500 REM
4510 REM  PRINT RESULT TO SCREEN 
4512 IF START=0 THEN CC=1:X=2:START=1:
HEAD$=" ":HEAD$=" ":HEAD$(38)=" ":HEAD
$(2)=HEAD$:GOTO 4540
4530 X=X+12:IF X=38 THEN X=2:Y=Y+1:? #
3;HEAD$:HEAD$=" ":HEAD$(38)=" ":HEAD$(
2)=HEAD$
4535 IF FIN=1 THEN ? #3;HEAD$:RETURN
4540 HEAD$(X,38)=SLN$:HEAD$(X+5,38)="
":HEAD$(X+6,38)=SCH$:GOSUB 4710
4550 RETURN
4600 IF X<>26 THEN FIN=1:GOSUB 4500
4605 IF X=26 AND FIN=0 THEN ? #3;HEAD$
4610 HEAD$="└──────────┴──────────┴────
──────────┘ ":? #3;HEAD$:POKE 82,2
4620 SETCOLOR 2,14,10:SETCOLOR 1,0,2:P
OKE 752,0:? "␛               IT'S DONE"
4630 CLOSE #1:GOSUB 6100:POP :RUN
4700 REM  HEAD$ DEFAULT 
4710 HEAD$(1,1)="|":HEAD$(13,13)="|":H
EAD$(25,25)="|":HEAD$(37,37)="|":RETUR
N
5000 REM  MAIN MENU 
5010 POKE 82,2:? "␛":POKE 752,1:SETCOL
OR 2,0,0:SETCOLOR 1,0,10
5020 ? "GET IT RIGHT! ATARI USER'S CHE
CK SUM."
5030 ? "────────────────────────────
──────"
5040 ? :? "        1  DISPLAY CHECKSUM
DATA."
5050 ? :? :? "        2  PRINT CHECKSUM
 DATA."
5060 ? :? :? "        3  EXIT TO BASIC.
"
5080 POSITION 11,21:? "By Richard Vann
er":? :? "    Modified by Andre Wille
y.";:POSITION 1,14
5090 OPEN #1,4,0,"K:"
5100 GET #1,KEY
5110 KEY=KEY-48
5120 IF KEY<1 OR KEY>3 THEN GOTO 5100
5125 CLOSE #1:POKE 752,0
5130 ? :ON KEY GOSUB 80,7000,6000
5140 GOTO 5000
6000 GRAPHICS 0:END
6100 REM  PRESS A KEY 
6110 OPEN #1,4,0,"K:":? "     PRESS AN
Y KEY TO CONTINUE"
6120 GET #1,DAT:CLOSE #1:RETURN
7000 CLOSE #3:OPEN #3,8,0,"P:"
7010 GOTO 80
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	2425	20	5698	25	2404
30	9053	35	8867	40	4303
45	5811	50	2424	60	10941
65	2671	70	10495	75	4440
80	5084	81	13173	82	4654
83	5672	84	5483	85	6445
95	5015	100	5896	105	4728
110	4601	130	5821	140	5635
145	5536	150	3741	999	45468
1000	22564	1010	4820	1020	2759
1030	1498	1040	871	1050	24860
1060	5188	1070	1498	4000	7144
4005	2244	4010	1823	4020	4682
4030	5983	4050	2932	4060	11774
4070	5699	4080	7780	4090	6819
4100	5927	4200	9496	4210	3069
4240	2676	4250	13270	4260	1329
4270	1498	4300	10325	4310	7089
4312	5514	4360	12915	4400	8682
4410	6161	4420	6238	4470	12915
4500	871	4510	14712	4512	16252
4530	13804	4535	5653	4540	11387
4550	1498	4600	5492	4605	5864
4610	6982	4620	12407	4630	5600
4700	9503	4710	12709	5000	7064
5010	10675	5020	8034	5030	1901
5040	7235	5050	6960	5060	5508
5080	19543	5090	2690	5100	1876
5110	2026	5120	5665	5125	3475
5130	5040	5140	1856	6000	3046
6100	7796	6110	9231	6120	5065
7000	4370	7010	1430		

CALLING ALL CARS – ON AN ATARI 130XE

I HAVE had an Atari 130XE since last May and I am being plagued by a problem that has caused me considerable irritation over the last 11 months.

I wonder if anyone can suggest a method of stopping my machine from picking up signals from radio cabs.

It occurs only during tape and disc loading operations and drags in signals from up to 30 miles away. I suspect the problem is somewhere in the computer TV cable but have no idea how to stop it.

I have to disagree with L. Wheelhouse's comments on Firebird's Chimera. It is definitely inferior to Alien 8. The graphics are less detailed, less clear and it is mind-numbingly slow.

The loading screen is good but does not compare with those of disc games and only wastes loading time. I do agree that the pause mode is probably the best feature of the game.

However, Firebird must be congratulated for supporting the Atari – and at a reasonable price too.

If you've bought the game write and complement Firebird on it. This is the only way to encourage companies to support the Atari.

Can you include memory requirements in reviews as I'm biased against games that use less than 48k? Also with a software boom on the way can you review more software? – **A.W.R. Crawford, Penicuik.**

Cartridge not needed

I HAVE just purchased an Atari 800XL for my children and have fallen in love with it myself. Mind you, I am so green you wouldn't believe it.

But the point of my letter is that I am told that I need Atari's tape CXL400Z to play certain tapes and to be able to save programs.

But all the shops I have been into do not have it. Could you help please? – **R.W. Jackson, Surrey.**

● The item you describe is actually nothing more than the Basic cartridge, as provided with the old 400 and 800 computers.

Your 800XL (and the 130XE) has the Basic language built inside the casing, and so you don't need the cartridge at all.

When you are asked to "Plug in your Basic cartridge and switch on", all you need to do is simply switch on.

If any program or game requires you to remove the cartridge, just hold down the Option key on the keyboard as you switch on. This will disable the built-in Basic and act as though it wasn't there.

Database on tape

I OWN an 800XL with a 1010 recorder, but after a fruitless search of the shops in my area I have found it impossible to obtain a database/spreadsheet on cassette.

Although I am learning programming I am not good enough to write a program for my needs – I own hundreds of records and would like to be able to catalog them for easy access.

Therefore could you please inform me of any database/spreadsheet and how to get it? – **R. Goat, Richmond, N. Yorkshire.**

● Unfortunately you're quite right – there isn't a decent database/spreadsheet available on cassette for the Atari.

Really, these applications need a disc drive to be effective, as cassette handling is so very slow.

Your best bet would be to buy yourself a second-hand disc drive, and get a copy of Mini Office II for the Atari when it is released shortly.

This features both a database and a spreadsheet, plus a word processor, mailmerge, graphics package and communications software all on one disc. You'll find it the cheapest way to buy these items.

600XL upgrade kit

I HAVE good news for 600XL owners who have been looking for a cheap upgrade kit.

A firm in the States has one for $35 US – shipping included – that will make a 600XL perform exactly like the 800XL.

I recently installed one for a friend of mine in about 30 minutes, and she now has 37,902 free bytes and can run any of the software I have for my 800XL.

The kit consists of two new RAM chips and three jumper wires, two of which require some simple soldering to install.

The instructions are simple and easy to follow. The firm is happy to ship over here as long as payment is in US dollars – such as an international money order.

The company is: Computer Service Land, 1073 W. Broad Street, Falls Church, Va, 22046, USA. – **Bob Matiska, USAF.**

XL-XE compared

I AM thinking of buying either an Atari 800XL or 130XE.

I can get an 800XL plus 1050 disc drive for £130, but the lowest price I have seen for a 130XE + 1050 disc drive is about £240.

I rather like the 130XE's styling, but this isn't the best criterion for choosing a micro.

I know it has an extra 64k of paged memory, but I have read that little software exploits this.

Does the 130XE have any other different features to the 800XL, and if so are they supported by enhanced software? – **Marcus Groan, Manchester.**

● The 130XE is the same as the 800XL in most respects, and has all of the features provided by its smaller brother.

It does of course feature twice the memory capacity. This is implemented as four 16k banks of RAM, which can be switched in and out as required by the user.

Various software packages use this extra memory, including the DOS 2.5 ramdisc, SuperScript word processor SynFile+ database and SynCalc spreadsheet.

Also Basic XE from OSS will allow you to write programs of up to 64k, and provides a further 37k for data. strings, graphics and so on.

It also maintains complete compatibility with standard Atari Basic.

'Missing' memory

WHENEVER I type:

PRINT FRE (0)

on my 800XL I get the answer: 37902.

I know that the self-test built into the computer uses some memory, but surely not 26k.

Is it possible that I could have destroyed a chunk of RAM by inadvertently switching on the computer/recorder in the wrong sequence?

If so, surely I would not have been the first novice programmer to do so. – **Patrick E. Granger, Rotherham, South Yorkshire.**

● Don't worry, you haven't damaged your computer – this figure is perfectly normal.

→

Just be thankful you aren't using a 130XE, as you'd have lost 90k of memory, by your calculations, if that were the case.

Although the 800XL has 64k of memory the 6502 chip that it uses can only access a total of 64k – including all of the operating system in ROM, Basic itself, your screens and so on.

The OS is 16k long, and Basic is 8k. The screen is about 1k, and various special areas for input and output take up another 1k or so. Thus you have just "lost" 26k.

The area under Basic and the OS is still there as RAM, but you can only get at it by turning one or the other off, and thus sending your Basic program into never-never land.

If you really want to access this extra RAM you must leave a small machine code program in command when you turn the OS off in order to stop the system from crashing.

Ramdisc on 130XE

I WISH to use the ramdisc facility on my 130XE offered by DOS 2.5 when using VisiCalc. Which disc do I boot first? – **Tim Brett Holt, Camberley, Surrey.**

● Unfortunately VisiCalc comes on a protected disc with Atari DOS 2.0 provided.

It would be quite hard to reformat the disc to use DOS 2.5 so, without any detailed technical programming experience, you'd probably be best sticking with VisiCalc as it is.

Four line listings

IT said in the manual for my 800XL that no listing should exceed three lines, but in your October issue the Pontoon game had three listings of four lines.

So we made each listing in two lines instead of four. The game worked all right but is a bit fuzzy on the writing.

In the January issue you have a listing in Mr Humpy with four lines. We did the same and split the line in two. The game works quite well but I wonder if it is all right.

I have read the Atari handbook and it says you can write listings of four lines or more but does not say exactly how.

It just says to play about with the Clr, Set or Tab key. Could you explain how to write these lines? – **N. Meadows, Bideford, Devon.**

● The computer can only accept a maximum of three screen lines of input for any given program line and there is really no way to get around this.

However there's nothing to say that you can't try and pack as much into those three lines as possible.

Firstly, before you start typing in your program type:

```
POKE 82,0
```

This will set the margin to 0, so giving you back the two empty spaces at the start of each line.

If that still doesn't give you enough room to enter a given line use abbreviations. Thus if a line of a listing reads:

```
10 GRAPHICS 0: SETCOLOR 1,0,14:
   POSITION 4,4: PRINT "HELLO"
```

try typing in:

```
10GR.0:SE.1,0,14:POS.4,4:?"HELLO"
```

The computer will understand the two as meaning the same thing and when you type LIST you will see the full version, not the abbreviations.

Consult your manual for the correct abbreviations for all of the Basic commands – most are the first few letters followed by a dot.

By using both of these methods there are no lines of program that you should ever have any problem with.

Don't forget someone had to enter them into the same type of computer in the first place, so they must go in.

ATARI USER Mailbag

WE welcome letters from readers – about your experiences using the Atari micros, about tips you would like to pass on to other users . . . and about what you would like to see in future issues.

The address to write to is:

Mailbag Editor
Atari User
Europa House
68 Chester Road
Hazel Grove
Stockport SK7 5NY

Better disc labels

YOU may have noticed that it is very difficult to buy floppy disc labels and write-protect tabs separate from a box of floppies.

In searching for a suitable alternative I got a packet of self-adhesive coloured labels from a well known High Street stationers.

These labels seemed to be even more useful than standard write-protect tabs since they would double as a colour-coding system.

Naturally I used the real labels to protect discs that I must not write on under any circumstances. However that proved my downfall.

The write-protect circuitry in the Atari disc drive uses infra red light to sense the presence or absence of a write-enable notch, and infra red goes straight through these labels.

I formatted two discs containing valuable programs before I realised what was happening. This type of write-protection is worse than none at all since it inspires a false sense of security.

The moral of the story is keep trying to find the correct labels, or if you must use coloured labels use any colour other than red – blue or green would be best. – **Jolly Roger, Winnersh, Berks.**

Using checksum

COULD you tell me how to use your checksum. I have tried to follow your instructions in the March issue of Atari User*, but have had no success.*

I do not understand your statement: "Now load Get It Right! into the machine, taking note of the instructions contained in the REM in line 999".

I have typed in all your games since I got my 800XL in January 1986, and only two have worked. It is so disappointing to sit for several hours typing in and then find nothing happening. – **David Brunton, East Lothian.**

★ ★ ★

COULD you please reprint your checksum as I have lost my copy of your corrected version. – **Joe, Sale, Manchester.**

★ ★ ★

I BOUGHT your December 1985 issue of Atari User*, and I also bought the tape for that month so I could use the checksum.*

However when I tried to follow your instructions on how to load the checksum and then type RUN the program will not work. Please could you print the instructions more clearly? – **T. Haskins, Gwent, South Wales.**

● Your wish is our command. In response to many similar letters pleading for us to reprint the checksum as the original issue is now out of print we have done so this month.

We've even added a couple of extra features. So now you don't need to write in with problems with our listings – you can all find out for yourself where your typing mistakes are.

Silencing disc din

I HAVE an 800XL with disc drive and was plagued with a terrible din everytime I used the drive.

Not knowing any better I thought this was normal, but after talking with John Lawson at Computer Support I found out there is a simple way to silence the drive.

Just disconnect all wires to the drive, turn it upside down, undo the screws and turn the drive back the right way up.

Then take off the lid, apply a very small drop of ear-ex to the head runners – being very careful not to get any on or near the head – and finally just put it all back together. – **K.J. Newton, Hertfordshire.**

Paint dump program

I AM the proud owner of an Atari 800XL, disc drive, cassette recorder and 1029 printer.

The keyboard and disc drive came in a Dixons pack, with which I received The Home Filing Manager, The Pay-off and Paint.

When I added a printer to my system I chose the Atari 1029. this came with Atariwriter and Dump1029.

When I booted up Dump1029 I discoverd to my dismay that the program would only dump 62 sector picture files.

Rather than write my own dump program I decided to write a modifier program to turn Paint files into 62 sector picture files.

I worked out that in Mode 7 – which Paint works in – it took two bits to define each pixel as there are four colours in Mode 7 and there are also four different combinations of two bits – 00,11,10 and 01.

Because of this it takes 40 bytes for each screen line in Mode 7.

Getting back to the problem, Dump1029 would only accept pictures drawn in Modes 8 or 15. So to convert Paint files to Mode 15 files all I needed to do was duplicate each 40 bytes.

*Not quite so. Paint does not use all of a Mode 7 screen, so extra zeros must be added to the end to make the total number of bytes up to 7680 (192*40).*

I have written the following self-explanatory program to overcome this problem. – **John Young, Banbury, Oxon.**

```
10 DIM SF$(15),DF$(15),YN$(5),B(40):GR
APHICS 0
15 POSITION 0,0:PRINT "PAINT PICTURE M
ODIFIER FOR: DUMP1029.BAS"
16 POSITION 13,1:PRINT "By John Young"
20 PRINT :PRINT "Enter source (PAINT)
filespec";:INPUT SF$
30 PRINT :PRINT "Enter destination fil
espec";:INPUT DF$
40 CLOSE #1:OPEN #1,4,0,SF$
50 CLOSE #2:OPEN #2,8,0,SF$
60 FOR L=1 TO 96:GET #1,BYTE
70 NEXT L
80 TRAP 130
90 FOR N=1 TO 40:GET #1,BYTE:B(N)=BYTE
:NEXT N
100 FOR S=1 TO 2
110 FOR N=1 TO 40:PUT #2,B(N):NEXT N:N
EXT S
120 GOTO 90
130 FOR E=1 TO 1440:PUT #2,0:NEXT E:CL
OSE #1:CLOSE #2:PRINT :PRINT DF$;" cre
ated."
140 PRINT :PRINT "More file to modify
(Y/N)";:INPUT YN$
150 IF YN$(1,1)<>"Y" AND YN$(1,1)<>"N"
 AND YN$(1,1)<>"y" AND YN$(1,1)<>"n" T
HEN 140
160 IF YN$(1,1)="N" OR YN$(1,1)="n" TH
EN E=USR(58484)
170 REM
```

● We're glad you liked the 1029 dump program John, and many thanks for the tip.

We're sure that many other readers will like the extra facility of printing Paint files as well as MicroPainter and Touch Tablet pictures.

The dump that doesn't

COULD you publish a 1029 screen dump because the one you printed did not work.

Also why have you not printed a review on the Eidolou. Having heard that it is very good I would like to hear what you think about it before I buy. – **G. Shread.**

● Have you thoroughly checked your typing to make sure that all of the DATA statements are correct?

We can assure you that the program does work as printed – as you can see from John Young's letter above he has managed to get it working with no problems.

On the Yukon trail

IN reply to Robert and Karen Eventine's letter in the July 1986 Mailbag, to find Yukon Yohan you must fill up the Hi-score table.

Once it is full, play the game once more so that your score is bigger than the last score on the Hi-score table.

Enter your name and the lowest score will be brought down off the table and your last score will go up. Then two bulldozers will squash the abandoned lowest score and Yukon Yohan will arrive on a lift, walk over to the squashed score and kick it off the screen.

Yukon can be either smoker or gum-chewer. I hope that answers your question. – **Frank Driver, West Town, Peterborough.**

● Matthew Burroughs, of Ormskirk, also provided this solution. Our thanks to you both.

Store data in ramdisc

I WOULD like to know if the Atari 130XE is a 64k or 128k computer as I am writing an adventure which is likely to take up more than 64k or memory.

The manual said that to get 131,072 bytes – 128k – of RAM type the following:

Poke 54017, 193+4* address + 16*mode

and then press Return. It came up with Ready so I then typed:

Print FRE (0)

and it came up with 37902 bytes free which is not 128k of RAM.

Can you help me? – **Richard Powell, Woodhouse, Sheffield.**

● The 130XE is indeed a 128k computer, but you must remember that Atari Basic only supports 37902 bytes of memory after the OS and graphics overheads have been removed from the main 64k area. The four extra 16k banks can be accessed as you described.

Perhaps better still you could use DOS 2.5 to store your data in to the ramdisc, and read it back again as a file each time you need it. The ramdisc is very fast, so you shouldn't notice any appreciable delay.

Flight simulator

IN your May 1986 Mailbag there was a letter from Alex Ford who was interested in flight simulators.

Has he had a look at Digital Integration's rather good Fighter Pilot?

Could you help me find some books on Ataris. No one in my area stocks them, so where do I go? – **R. Hadleigh, Redditch.**

● Thanks for the advice on the flight simulators, of which there are now quite a number, including Jump Jet and Flight Simulator II.

As to your question on books, if you can't find anywhere locally why not try one of the larger mail order companies?

Both Software Express and Silica Shop should be able to help with most types of Atari book, and also give you advice on which titles would best suit your needs.

This would be far better than ordering blind from W.H. Smith, for example.

Monitor mismatch

I OWN an Atari 800XL with a 1050 disc drive and 1020 printer.

A few weeks ago I was given an Amstrad CTV648 monitor, but I found that the 6 pin plug wouldn't match with the 6 pin DIN socket of my Atari.

I have tried to find information on how to connect the monitor to my computer, but

→

nobody seems to know how.

Can you please help? – **K. Zannis, Lower Kersal, Salford.**

● The Amstrad uses a system called RGB to connect with its monitor, and the 800XL uses a completely different method known as composite video.

Unfortunately there is no easy way to get the Atari to talk to the Amstrad monitor. You will need to get a composite monitor rather than an RGB one.

Cleaner graphics

HOW do the professionals draw graphics for games so it does not leave a trail and doesn't flash?

Can you give me a short program on how to draw moving graphics, and can you also tell me how to combine two graphics modes? – **Merlin House, Hockley, Essex.**

● Although your question is simple enough the answer is very complicated indeed. To make a game look as professional as a purchased one you will need to write it in machine code.

That said, you will get some good hints and tips on how to get your games working a lot faster if you have been following our series on Player/Missile Graphics which started in the May issue.

We covered display lists – which allow you to combine different graphic modes on a single screen – in Mike Rowe's series of articles which ran from July to December 1985.

Simpler scrolling

PEREGRINE Hills' solution in your May 1986 issue to Atari's rather fast scrolling was somewhat longwinded and I'd like to suggest some simpler methods of handling this problem.

I think it's even mentioned in the inadequate Atari Users Manual that by holding down the Control key and pressing the 1 key the list will be halted, and repeating the action will subsequently restart it.

In fact it stops screen output, and will work with any form of output to the screen – even graphics.

When you've found the section you seek the Break key may be employed as normal to return control to the keyboard.

Another more elegant solution is to type in the following line as a direct command:

POKE 622,255:GR. 0

This tells the Atari to rewrite its display list employing the fine scroll capability, and must be redone after each reset.

Not only does it slow the listing of programs to a much more readable speed, but it also looks very impressive. – **Tony Barker, Australia.**

● This tip is a useful one, but only if you have an XL or XE. The older 400 and 800 computers do not have this feature, which is why we printed Mr Hill's solution.

As you say, for XL and XE owners POKE 622,255 is a very elegant answer to this problem.

Antic chip playing up?

UNFORTUNATELY all is not well with my 800XL. The graphic characters on certain commercial programs appear incorrectly.

For instance, on Atarisoft's Pole Position the tyres on the racing car begin flashing strange colours whenever other cars overtake.

On US Gold's Dropzone – an excellent shoot 'em up game – the Defender-style radar screen corrupts a part of the screen reserved for smart bombs.

Also the scrolling sprite colours on the Hall of Fame do not work properly.

On English Software's Elektraglide there appear to be three exits from the first tunnel when there should only be one.

I know these errors are not caused by faulty software or head-alignment problems with my data recorder because I have tried using a friend's recorder to find the same errors, and they do not appear on his 800XL.

My theory is that there is a

Trouble in that Cavern

WHEN I run the Cavern Escape program from the May 1986 Atari User *I keep getting Error at lines 5042 and 5500. Could you tell me why this is so?* – **T.H. Man, Nottingham.**

★ ★ ★

I AM having trouble with Mike Rowe's Cavern Escape.

Twice I have programmed the game and twice I have got Error 6 at line 6245.

After 6½ hours of using the keyboard my patience was wearing a bit thin.

The game does run, but so far my son has only been able to find one key in Room 9.

Where have I gone wrong and do I have to retype the full program? – **A. Bushy, Hull.**

★ ★ ★

I TYPED in Cavern Escape from your May issue, and then CSAVEd it on to cassette.

However when I ran the program the screen went blank as was stated, but if I didn't press reset it would have stayed blank forever.

After having pressed reset and typing RUN all I get is Error 8 at line 5500.

I split line 5500 into four lines to find where the error was and it showed up a READ A.

As a newcomer to the Atari 800XL I am baffled by this and would be grateful if you could tell me where I have gone wrong.

I have checked my listing line for line and it is exactly as is printed in Atari User.

One more query I have is that after line 6000 there is a line starting:

5508 R=0

Should this be 6008 or is it a misprint? – **Allan Byrnes, Buckfastleigh, S. Devon.**

★ ★ ★

I AM having trouble getting Cavern Escape to work. I typed it in, corrected all errors using the checksum and sat back to enjoy the game.

The screen went blank after I typed in RUN as it's supposed to – the trouble is that's all that happened.

I have checked the programs checksum several times now, and I find there is an odd discrepancy. In the listing – page 20 – the following line appears between lines 6000 and 6010:

5508 R=0

I included this line in my typing, but whereas in your checksum the line is checked in the same order it is listed in my checksum it appears in its correct numeric place. Please could you explain this?

Finally one small point is that in line 1190 the second pair of hash marks is not very clear. Could you confirm that it is in fact a second set? – **Nigel Edwards, Leighton Buzzard, Beds.**

● The extra line 5508 crept in to the listing by mistake, and lots of people have pointed it out to us.

However it doesn't make any difference – the program will run correctly with or without it – phew!

The three sets of characters in line 1190 are: two inverse hash symbols (#), then an inverse hash and an inverse dollar sign, and finally two more inverse hashes.

If you had used the checksum and got it wrong, the numbers would not have matched, so we can only assume that if you did use Get It Right! you must have typed in the listing correctly.

Anyway – the answer to all of your problems is – use the checksum. You don't have any excuse now, as the full instructions have been reprinted on page 33.

hardware fault in the Atari's graphic chip which only affects certain software – the majority work without any problem.

Do you advise sending my faulty machine to Atari or return it, yet again, to Dixons? – **Andy Barr, Chairman, Withernsea Computer Club.**

● Yes it does sound rather like faulty hardware – probably the GTIA or ANTIC chips.

You might consider returning the machine directly to Atari in the hope that the turnaround time may be a little better than via Dixons.

The only disadvantage is that you will have to pay the carriage costs to get it there.

Elite for Atari

COULD someone tell me where the Atari version of Acornsoft's Elite is?

There was an advert in January's magazine, but when I phoned them up they had ceased trading.

Also is there an updated De Re Atari for XL/XEs? – **P. Myles, Woking, Surrey.**

★ ★ ★

AS the only UK magazine dealing with the best home micro can you try and get to the bottom of the rumours about Elite for the Atari.

I wrote to Firebird just over two weeks ago, but have had no reply at all. Then in this month's C & VG I noticed a letter from a reader alleging that it has been smothered at birth by Acornsoft for being too good.

Just what is the truth? – **Richard Daley, Poole, Dorset.**

● A number of people have been writing to us asking about Elite on the Atari, and after a quick phone call to Firebird we can now set the record straight.

Firebird was planning an Atari version of Elite over a year ago, and early results looked impressive. Unfortunately the programmers working on the project split from Firebird, and plans were shelved.

A Firebird representative told us that the main problem was the lack of good 8 bit Atari programmers willing to take on the job.

He added that if any professional machine code programmers who are reading this would be interested in tackling such a major project, Firebird would be most eager to hear from them to talk terms.

In any event don't expect an Atari version of Elite to be in your local shops within the next few months.

Designer dilemma

I HAVE typed Player Designer into my 800XL, but cannot get it to work.

I have checked it line by line, but all I get on the screen is "Player Designer by Stephen Williamson, Please wait".

Can you please help?

Also in line 540 is it PMBASE or PMGASE as my copy of the program is not very clear? – **R.W. Holmes, Powys.**

● It's hard to say where the problem is from your description – the mistake could be almost anywhere.

Anyway, now that we've reprinted Get It Right! you can easily check typing mistakes yourself.

Line 540 says PMBASE, not PMGASE, so that may be where you've gone wrong.

Text windows

I OWN an 800XL and cassette, and have come across two problems.

Firstly how do you put a text window into Graphics 0?

Secondly how do you do smooth scrolling in Gr.0 upwards? – **A.R. Groves, Eastville, Bristol.**

● A text window can be added to a Graphics 0 screen very easily by typing POKE 703,4. This will enable you to scroll the bottom four lines without moving the other 20.

You must use PRINT #6 to print to the top portion though, just as you would any other type of screen with a text window.

To scroll text upwards requires more work, and there is no easy way to do this smoothly without some complicated machine code. Sorry.

Intermittent fault

I HAVE a six month old 800XL.

The problem is that while playing Cavern Escape the man suddenly went downwards on his own, but would not go upwards.

As I had already saved the game to tape I reset the computer and tried to type RUN. However the keyboard had locked-up. So I turned off the computer for five minutes, then turned it back on again. But I still got nothing from the keyboard.

I then turned it off again, and turned it on while holding down option for the self test.

I tested the memory first – ROM is OK, but on RAM 40 squares were green and eight red.

So I turned it off again, and switched on while holding down option. I then put all tests on, but this time all 48 boxes were green on RAM. Is my memory all right, or should I take it back to the shop? – **Catherine Mason, Wigan, Lancs.**

● It sounds as though you have an intermittent fault with your computer.

As it is still under guarantee your best bet would be to take it back to the shop you got it from and ask them to either exchange it, or send it back to Atari for testing and repair.

More £25 winners!

ELECTRONIC TYPEWRITER

From G.D. MASSEY

OF all the Five-liners that we have received, this one is probably the most straightforward. It enables your Atari keyboard to act like an electronic typewriter using its normal printer.

The screen acts just like the old memo pad mode on the 400 and 800 computers, except for the fact that control codes will go straight to the printer, rather than doing their normal function on the screen. Thus you can turn printer options on and off by sending the special codes. Some people may also wish to add a POKE 752,1 to remove the cursor.

The program was written in Class Five at Broadclyst Primary School – so Class Five, thanks for your Five-liner!

```
10 PRINT CHR$(125):OPEN #1,4,0,"K:"
20 OPEN #2,8,0,"P:"
30 OPEN #3,8,0,"S:"
40 FOR GO=0 TO 1 STEP 0:GET #1,K
50 PUT #2,K:PUT #3,K:GOTO 40
```

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	5540	20	2738	30	2756
40	5166	50	4476		

TWO FOR THE PRICE OF ONE

From RON SMITH

SOONER or later the Atari programmer needs to solve two problems – disabling the Break key and distracting the Attract Mode.

Most solutions for the Break key problem suffer from the drawback of having to repeatedly execute code within the Basic program after each I/O operation or change of graphics mode.

Presented here is a once-and-for-all five liner that solves the problem for most games and applications and throws in an answer to the Attract Mode problem for good measure. These should form the first five lines of your program for earliest protection.

The program uses just 24 bytes of machine code, tucked away at the top of page 6, leaving the rest clear for data or other routines.

The Atari displays a television screen once every 50th of a second, but has time between screens (the Vertical Blank) to leave a Basic program in order to carry out its own housekeeping.

Two user-patchable locations are provided during this time where the programmer may point the computer to a short machine code subroutine of his own. This routine uses the first of those opportunities, and sets up an immediate mode (as opposed to the second, deferred mode), Vertical Blank Interrupt (VBI) which resets IRQEN, the Interrupt Request Enable byte at 53774 ($D20E) and ATRACT, the Attract Mode timer and flag at 77 ($4D).

The great advantage of this sledgehammer approach is that, once started, the routine is executed automatically 50 times a second, at no cost to the Basic program. The approach is XL compatible, BREAK vector notwithstanding.

The program is constructed as follows:

Line 10 is a belt-and-braces step, setting up IRQEN and its shadow at 16 ($10) while the main routine is loading.

Line 20 sets up the Immediate Mode VBI and points the Operating System at our routine sitting at 1779, ($06F3).

Line 30 executes the VBI and our routine becomes operational within 1/50th second.

Line 40 contains the VBI initialisation and pointer data.

Line 50 contains the instructions which set IRQEN to 112 and ATRACT to zero, plus the jump that takes us back into the operating system's tasks, before rejoining the Basic program.

```
10 POKE 16,112:POKE 53774,112
20 FOR W=1768 TO 1791:READ A:POKE W,A:
NEXT W
30 X=USR(1768)
40 DATA 104,162,6,160,243,169,6,32,92,
228,96
50 DATA 169,112,141,14,210,169,0,141,7
7,0,76,95,228
```

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
10	4492	20	7660	30	2083
40	6323	50	7396		

Original, useful – or just plain fun!

IF you'd like to have a go at writing some Five-liners of your own – and we pay £25 for every one we print – then we'd like to hear from you.

Try to make them original, useful or entertaining. After we'd received the first couple of dozen programs to print your name on the screen, or play a musical scale, we began to get impatient for something more stimulating. Let's see you use your imagination!

Also, please remember that you're far more likely to get one published if you send us a neat listing, with good explanatory notes and a copy of the program on tape or disc. Our staff haven't got the time to decipher little scraps of paper or type in illegible listings. If we did, we'd never actually complete the magazine.

Send your Five-liners in to us at: Five-Liners, Atari User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

VARIABLE NAME LISTER

From VERNON YULE

THIS is a very elegant Five-liner which will allow you to check all of the variables you have used in a program. Type the routine into the computer, and LIST it to tape or disc. Then when you want it simply ENTER it back in again over your program in memory.

After it has run, you will be prompted to 'Delete Utility (Y/N)'. If you type Y the routine will delete itself by using the Return Key mode.

The program is very easy to understand. The start of the Variable Name Table is found by PEEKing 130 and 131. The end of this table is found from 132 and 133. All of the variable names are stored between these two locations.

Each separate name ends with an inverse character, so anything over 127 is converted to a normal character (by subtracting 128) and a new line is then printed. A string variable has a $ sign after it, and an array has a (. The routine adds the extra nn) for clarity.

Line 32767 gives the option to delete the utility, which is actually done in line 0 by printing the line numbers on the screen and using Return Key mode to enter them into memory.

NB: Make sure that your program does not use lines 0, or 32764 to 32767. Also, the variable Z is used by the routine, so that will always be added to the list.

```
0 GRAPHICS 0:? :GOSUB 32764:? 0:? 3276
4:? 32765:? 32766:? 32767:? "POKE 842,
12:GR.0":POSITION 0,0:POKE 842,13:END
32764 ? " Variable Table.":? " ────────
────────":? :? "  ";:FOR Z=PEEK(130)+2
56*PEEK(131) TO PEEK(132)+256*PEEK(133
)-1
32765 ? CHR$(PEEK(Z)-128*(PEEK(Z)>127)
);:IF PEEK(Z)=168 THEN ? "nn)";
32766 IF PEEK(Z)>127 THEN ? :? "  ";
32767 NEXT Z:? :? "DELETE UTILITY? Y/N
 ";:OPEN #1,4,0,"K:":GET #1,Z:? :IF Z=
89 THEN ? CHR$(125):? :? :RETURN
```

Get it right!

LINE CHSUM	LINE CHSUM	LINE CHSUM
0 19490	32764 17404	32765 11430
32766 5181	32767 18263	

MULTICOLOURED BACKGROUND

From STEVEN CROWE

WE all know that the Atari has some amazing graphics facilities, but how about a multicoloured background on your Graphics 0 text screen? The effect can easily be achieved with DLIs and a touch of machine code. In fact, it's really a four-liner!

Line 10 modifies the Display List to cause a jump to our machine code after each line of text has been displayed.

Line 20 loads the machine code into the ever reliable Page 6! The address is given to ANTIC by setting locations 511 and 512, and the interrupt is enabled with POKE 54286,192.

Line 30 contains the data for the machine code routine.

Line 40 contains the data for the colours of each of the 24 lines. Each number is given by (Colour number * 16) + brightness. If you use values lower than 6, then try POKE 709,14 in line 10, or you might not be able to read your text!

To remove the display, either press the Reset button or enter a new GRAPHICS command.

```
10 GRAPHICS 0:POKE 709,0:DL=PEEK(560)+
256*PEEK(561)+6:POKE DL-3,194:FOR X=DL
 TO DL+22:POKE X,130:NEXT X
20 FOR X=0 TO 58:READ D:POKE 1536+X,D:
NEXT X:POKE 512,0:POKE 513,6:POKE 5428
6,192:POKE 710,10
30 DATA 72,138,72,175,34,6,189,35,6,14
1,8,212,141,24,208,232,142,34,6,138,24
,233,23,208,5,169,0,141,34,6,104
31 DATA 170,104,64,0
40 DATA 26,42,58,74,90,106,122,138,154
,170,186,202,218,234,250,10,26,42,58,7
4,90,106,122,138
```

Get it right!

LINE CHSUM	LINE CHSUM	LINE CHSUM
10 18253	20 16000	30 15766
31 2762	40 13590	

32 COLUMN SCREEN EDITOR

From JASON GRANT

THE text editor does not automatically adjust for a narrow playfield screen with its 32 column lines. Here is a short program which will adjust the editor to allow you to use a narrow screen, via an altered Display List. Unfortunately this method does not work for the wide screen option.

Line 10 sets the margins to display 32 characters, the maximum on a narrow screen. It then enters Mode 0 and sets DS to the current Display List address. DL is used as a counter to set up the new Display List in Page 6.

Line 20 puts 3 blank lines at the start of the display, then begins to write out the 24 modified lines.

Line 30 tells the computer where the next line of text data is located, and increments ready for the next one.

Line 40 then completes the FOR ... NEXT loop and sets the screen into narrow mode.

Line 50 tells ANTIC where the new Display List is located, and away it goes!

```
10 POKE 82,0:POKE 83,31:GRAPHICS 0:DS=
PEEK(88)+PEEK(89)*256:DL=1539
20 FOR I=1536 TO 1538:POKE I,112:NEXT
I:FOR I=1 TO 24:POKE DL,66
30 POKE DL+2,INT(DS/256):POKE DL+1,DS-
256*PEEK(DL+2):DS=DS+40
40 DL=DL+3:NEXT I:POKE 559,33:POKE DL+
2,6
50 POKE DLL,65:POKE DL+1,0:POKE 560,0:
POKE 561,6
```

Get it right!

LINE CHSUM	LINE CHSUM	LINE CHSUM
10 11966	20 11038	30 10591
40 7246	50 8249	

80 column text plus graphics mode 8 equals the pro look

By R. and A. LINES

THIS program uses graphics mode 8 to produce an 80 column text display which can be combined with mode 8 graphics to produce professional looking displays in your own programs.

Before running this program SAVE a copy to disc or tape. This is very important because the program will rewrite itself then delete a large part of itself. This is to save you a lot of hard work trying to type the control codes in the program correctly.

The program will read the data statements and then write new program lines containing the string definitions for the machine code routine and the character set data. These strings are almost unreadable, containing approximately 400 Escape and Control key characters.

After writing these lines, the program will delete all the data statements and most of the program elements involved in creating these strings, only leaving three lines not needed for the program. These are lines 1230, 1240 and 1250, and they should be deleted. They cannot be deleted by the program because they are required by the delete routine! If you do not SAVE a copy before running, and you have made any typing errors, you will have to start all over again.

When you first run this program the screen will go black and the data statements will be counted down on it. When the counter reaches zero the screen will return to the normal graphics 0 display and you will see the strings being printed out and the cursor move down over the screen text.

This is followed by a few screens of line numbers, which is the line deletion process taking place. When complete the program will return you to direct mode Basic with the familiar READY prompt. At this point the three lines mentioned earlier should be deleted.

Now SAVE the new program under a different filename to the original. It is this version of the program that you will use to produce your 80 column displays.

Some of you may be wondering how your Atari can start writing new parts of the program and deleting lines all by itself. This is because your Atari is brainier than the average computer.

Actually it is very easy to persuade your Atari to do the work for you – this can be achieved with one simple POKE. Using the POKE puts the computer in to 'Return Key mode'. Pokeing 842 with 13 puts the computer into screen input/output mode. Pokeing 842 with 12 returns the computer to keyboard input mode.

This means that anything on the screen and below the cursor when this poke is performed will be treated as a direct mode command. Anything you require to be done is printed on the screen and the cursor is positioned above the commands. Then you POKE 842,13:STOP.

You must also have a CONT statement after the last command you want executed, which will continue program execution at the next line after the STOP command. This next command should be POKE 842,12. For an example of how to do this see line numbers 820 to 900.

The machine code routine is called by the USR function:

Z=USR(ADR(PROG$), ADR(CHAR$),X,Y,ADR(CH$))

The first parameter is the address of the string that contains the 80 column program and the second is the address of the string containing all the data for the redefinition of the character set.

The third parameter is the X coordinate of the starting position of

IN order to show you how this routine works we have printed three demonstration programs. To use them you should first create your main program by following the instructions in the text.

After the working version has been created, delete lines 1230, 1240 and 1250 and SAVE it to disc or tape. This is now your master program.

For each of the three demo programs type NEW and then type in the lines. You must now LIST – not SAVE – a copy to your tape or disc, and you may then checksum it if you desire.

To run them, first LOAD the master program, then ENTER the first demo to merge the two files. You could SAVE a copy of the merged program at this stage if you so desire. After you have RUN it you may ENTER the next demo, and after that the third.

Demo 1 shows an 80 column table of computer facts, Demo 2 shows what an adventure game might look like in 80 column, and Demo 3 shows graphics and 80 column text on a chart.

the line of text to be printed. It can have a value between 1 and 80, but it should be remembered that text can only be printed on the same line – that is, it will not continue on to the next line.

The fourth parameter is the Y coordinate of the starting position of the line of text to be printed. It can have a value between 1 and 185.

The fifth parameter is the address of the string that contains the line of text to be printed, in this case CH$.

The USR function is provided at line 200 in the program, although of course you may place a USR call wherever you desire one. The one in line 200 is set up to be used as a subroutine with the demonstrations provided.

Each line of text must be terminated by an @ because the machine code routine uses this character to determine when to finish printing.

The normal keyboard characters can be obtained, and in addition a pound sign – £ – can be obtained by using Control-fullstop.

Normal 40 column characters are drawn on an 8 × 8 matrix, for instance the letter a is drawn as follows:

```
Character     Binary     Decimal
........      00000000     0
...##...      00011000    24
..####..      00111100    60
.##..##.      01100110   102
.##..##.      01100110   102
.######.      01111110   126
.##..##.      01100110   102
........      00000000     0
```

As we are using 80 characters per line each character can only be half as wide, that is it is a 4 × 8 matrix, therefore the character data is stored in pairs of characters. For example, B and C are stored as shown below. ■

```
Character     Binary     Decimal
##...##.      11000110   198
#.#.#...      10101000   168
#.#.#...      10101000   168
##..#...      11001000   200
#.#.#...      10101000   168
#.#.#...      10101000   168
##...##.      11000110   198
........      00000000     0
```

VARIABLES

CHAR$	Holds character set data.
CH$	Holds text to be printed.
PROG$	Holds machine code routine.
NUM	Counter for data statements.
I,D	For-Next counter.
N	Read variable.
Z	Dummy variable for USR function.
X	X coordinate.
Y	Y coordinate.
A	Offset for line delete routine For-Next.

Main program

```
100 DIM CHAR$(384),CH$(81),PROG$(294)
110 GRAPHICS 17:NUM=677
120 POSITION 2,2:? #6;"PLEASE WAIT WHI
LE    DATA IS READ IN "
130 RESTORE 230:FOR I=1 TO 383
140 READ N:NUM=NUM-1:POSITION 9,9:? #6
;NUM;"  "
150 CHAR$(I,I)=CHR$(N)
160 NEXT I
170 RESTORE 720:FOR I=1 TO 294:READ N:
NUM=NUM-1:POSITION 9,9:? #6;NUM;"  ":P
ROG$(I,I)=CHR$(N):NEXT I
180 GOTO 820
190 GOSUB 2000:GRAPHICS 8+16:SETCOLOR
1,12,0:SETCOLOR 2,0,10:SETCOLOR 4,9,4:
GOTO 2200
200 Z=USR(ADR(PROG$),ADR(CHAR$),X,Y,AD
R(CH$))
210 RETURN
220 REM CHARACTER DATA
230 DATA 4,4,4,4,4,0,4,0
240 DATA 160,170,14,10,14,10,0,0
250 DATA 2,74,226,196,104,234,72,0
260 DATA 66,162,64,192,160,64,32,0
270 DATA 36,66,66,66,66,66,36,0
280 DATA 110,130,130,196,164,168,72,0
290 DATA 0,0,0,14,0,32,32,64
300 DATA 2,2,4,4,4,8,72,0
310 DATA 68,172,164,164,164,164,68,0
320 DATA 204,162,00,76,130,130,108,0
330 DATA 142,136,136,172,226,00,44,0
340 DATA 110,130,130,196,164,168,72,0
350 DATA 68,170,170,70,162,162,76,0
360 DATA 0,0,68,0,68,8,0,0
370 DATA 0,32,78,128,78,32,0,0
380 DATA 4,138,66,36,68,128,4,0
390 DATA 4,74,234,238,234,138,106,0
400 DATA 198,168,168,200,168,168,198,0
410 DATA 206,168,168,174,168,168,206,0
420 DATA 230,136,136,232,138,138,132,0
430 DATA 174,164,164,228,164,164,174,0
440 DATA 234,42,42,44,42,170,74,0
450 DATA 138,142,138,138,138,138,234,0
460 DATA 164,234,234,170,170,170,164,0
470 DATA 196,170,170,202,138,138,132,2
480 DATA 198,168,168,196,162,162,172,0
490 DATA 234,74,74,74,74,74,68,0
500 DATA 170,170,170,170,234,78,74,0
510 DATA 170,170,170,74,164,164,164,0
520 DATA 230,36,36,68,68,132,230,0
530 DATA 140,132,68,68,68,36,44,0
540 DATA 0,64,224,64,64,64,64,14
550 DATA 96,128,128,198,138,138,230,0
560 DATA 0,128,128,198,168,168,198,0
570 DATA 0,32,32,108,170,172,102,0
580 DATA 0,96,128,134,202,134,130,12
590 DATA 0,132,128,204,164,164,164,0
600 DATA 0,72,8,74,76,74,74,128
610 DATA 0,128,128,138,142,138,74,0
620 DATA 0,0,0,196,170,170,164,0
630 DATA 0,0,0,198,170,170,198,130
640 DATA 0,0,0,102,132,130,142,0
650 DATA 0,0,128,202,138,138,100,0
660 DATA 0,0,0,170,170,78,74,0
670 DATA 0,0,0,170,74,166,162,12
680 DATA 6,4,4,232,68,132,230,0
690 DATA 76,68,68,66,68,68,76,0
700 DATA 4,174,10,14,14,10,4,0
710 REM  M/C PROG DATA
720 DATA 104,216,104,141,11,6,104,141,
10,6,104,104,141,0,6,104,104,141,1,6,1
04,133,208,104,133,207,165,88,133,203
730 DATA 165,89,133,204,173,10,6,133,2
05,173,11,6,133,206,162,0,161,207,201,
64,208,1,96,161,207,56,233,32,74,170
740 DATA 224,0,240,17,202,165,205,24,1
05,8,133,205,165,206,105,0,133,206,24,
144,235,160,0,177,205,153,2,6,200,192
750 DATA 8,208,246,172,1,6,24,144,17,2
4,144,180,165,203,24,105,40,133,203,16
5,204,105,0,133,204,136,208,240,173,0
760 DATA 6,74,168,24,144,14,165,203,24
,105,1,133,203,165,204,105,0,133,204,1
36,208,240,160,0,177,207,41,1,208,51
770 DATA 162,0,94,2,6,94,2,6,94,2,6,94
,2,6,232,224,8,208,239,173,0,6,41,1,20
8,19,162,0,30,2
780 DATA 6,30,2,6,30,2,6,30,2,6,232,22
4,8,208,239,24,144,48,24,144,154,162,0
,30,2,6,30,2,6,30
790 DATA 2,6,30,2,6,232,224,8,208,239,
173,0,6,41,1,240,19,162,0,94,2,6,94,2,
6,94,2,6,94,2
800 DATA 6,232,224,8,208,239,162,0,160
,0,189,2,6,17,203,145,203,165,203,24,1
05,40,133,203,165,204,105,0,133,204
810 DATA 232,224,8,208,231,238,0,6,165
```

→

```
,207,24,105,1,133,207,165,208,105,0,13
3,208,24,144,160
820 GRAPHICS 0:POKE 766,2:POSITION 2,4
830 ? "2000 PROG$(1,80)=";CHR$(34);PRO
G$(1,80);CHR$(34)
840 ? "2010 PROG$(81,160)=";CHR$(34);P
ROG$(81,160);CHR$(34)
850 ? "2020 PROG$(161,240)=";CHR$(34);
PROG$(161,240);CHR$(34)
860 ? "2030 PROG$(241,294)=";CHR$(34);
PROG$(241,294);CHR$(34)
870 ? "CONT"
880 POSITION 2,0
890 POKE 842,13:STOP
900 POKE 842,12
910 GRAPHICS 0:POKE 766,2:POSITION 2,4
920 ? "2050 CHAR$(1,80)=";CHR$(34);CHA
R$(1,80);CHR$(34)
930 ? "2060 CHAR$(81,160)=";CHR$(34);C
HAR$(81,160);CHR$(34)
940 ? "2070 CHAR$(161,240)=";CHR$(34);
CHAR$(161,240);CHR$(34)
950 ? "2080 CHAR$(241,320)=";CHR$(34);
CHAR$(241,320);CHR$(34)
960 ? "2090 CHAR$(321,383)=";CHR$(34);
CHAR$(321,383);CHR$(34)
970 ? "CONT"
980 POSITION 2,0
990 POKE 842,13:STOP
1000 POKE 842,12
1010 GRAPHICS 0:POSITION 2,4:A=100
1020 FOR D=1 TO 8:? A+10*D:NEXT D
1030 ? "CONT":POSITION 2,0
1040 POKE 842,13:STOP
1050 POKE 842,12
1100 FOR A=210 TO 1010 STEP 200
1110 GRAPHICS 0:POSITION 2,4
1120 FOR D=1 TO 20:? A+10*D:NEXT D
1130 ? "CONT":POSITION 2,0
1230 POKE 842,13:STOP
1240 POKE 842,12:NEXT A
1250 POKE 842,12:END
2100 CHAR$(75,75)=CHR$(34):CHAR$(86,86
)=CHR$(34):RETURN
```

DEMO 1: Computer Facts

```
2200 REM  80 COLUMN DEMO TABLE
2210 GOSUB 2420:GOSUB 2270
2220 RESTORE 2340:FOR I=1 TO 8
2230 READ X,Y,CH$:GOSUB 200
2240 NEXT I
2250 GOTO 2250
2260 REM
2270 RESTORE 2300:COLOR 1:PLOT 8,61:FO
R I=1 TO 19
2280 READ X1,Y1:DRAWTO X1,Y1:NEXT I
2290 RETURN
2300 DATA 311,61,311,139,8,139,8,61
2310 DATA 73,61,73,139,99,139,99,61,12
7,61,127,139,171,139,171,61,221,61,221
,139,257,139,257,61
2320 DATA 311,61,311,83,8,83
2330 GOTO 2330
2340 DATA 26,63,Total    Memory    Reso
lution    Text       Max.No.@
2350 DATA 6,74,Model          Price    Ra
m   for Basic      (Max)      (Max)     o
f Colours@
2360 DATA 3,85,Commodore C128  ♦269
128k       112k        320x200      80x25
     16@
2370 DATA 3,96,Amstrad CPC664  ♦339
 64k       42k         640x200      80x25
     16@
2380 DATA 3,107,Enterprise 128  ♦250
 128k        71k         672x512      84x24
     256@
2390 DATA 3,118,Memotech MTX512 ♦275
  80k        64k         256x192      40x24
      16@
2400 DATA 3,129,Atari 130XE      ♦170
 128k       100k         320x192      80x24'
     256@
2410 DATA 3,150,' Using Atari User Mag
azine's 80 column program.@
2420 REM TEXT IN GR.8
2430 DIM TEXT$(40)
2440 X=8:Y=40:TEXT$="Micro comparison
table"
2450 W1=PEEK(88)+PEEK(89)*256:W2=W1+Y*
40+X
2460 FOR ME=1 TO LEN(TEXT$):X=ASC(TEXT
$(ME,ME)):IF X>127 THEN X=X-128
2470 IF X>31 AND X<96 THEN X=X-32:GOTO
 2490
2480 IF X<32 THEN X=X+64
2490 TEXT$(ME,ME)=CHR$(X):NEXT ME
2500 FOR Z=1 TO LEN(TEXT$):X=ASC(TEXT$
(Z,Z)):W3=57344+X*8:FOR ME=0 TO 7:POKE
 W2+ME*40,PEEK(W3+ME):NEXT ME:W2=W2+1:
NEXT Z
2510 RETURN
```

DEMO 2: Adventure Game

```
2200 REM  80 COLUMN DEMO THGTTG
2210 DIM T$(1782)
2220 X=1:Y=8
2230 T$(1,81)="Outside Blood Bank@"
2240 T$(82,162)="You are in the middle
 of the block on a street that runs no
rth-south.@"
2250 T$(163,243)="Immediately to the e
ast is the entrance to a massive build
ing. Next to the@"
2260 T$(244,324)="entrance is a sign a
nd a doorbell.@"
2270 T$(325,405)=">READ THE SIGN@"
2280 T$(406,486)="'OUTSKIRTS OF LONDON
 BLOOD BANK:We pay ♦30 for a pint of b
lood. Painless, takes@"
2290 T$(487,567)="only an hour. Ring d
oorbell for admittance.'@"
2300 T$(568,648)=">EAST@"
2310 T$(649,729)="The Blood Bank door
is closed.@"
2320 T$(730,810)=">OPEN IT@"
2330 T$(811,891)="It's locked.@"
2340 T$(892,972)="RING THE DOORBELL@"
2350 T$(973,1053)="You already did tha
t, didn't you?@"
2360 T$(1054,1134)="NO@"
2370 T$(1135,1215)="I think you're wro
ng. I'm a computer, so I have a really
 terrific memory, and@"
2380 T$(1216,1296)="I'm almost positiv
e you already rang the doorbell. Could
n't you be mistaken?@"
2390 T$(1297,1377)="NO@"
2400 T$(1378,1458)="Hmmm...well, I jus
t looked back, and I guess you didn't
ring the doorbell after@"
2410 T$(1459,1539)="all. Do you still
want to ring the doorbell?@"
2420 T$(1540,1620)="YES@"
2430 T$(1621,1701)="The bell rings. A
minute later, a stooped man opens the
door and beckons you to@"
2440 T$(1702,1782)="enter.@"
2450 T$(1782,1782)="@"
2460 FOR I=1 TO 1782 STEP 81
2470 CH$=T$(I,I+80):GOSUB 200:Y=Y+8
2480 NEXT I
2490 GOTO 2490
2500 REM
2510 REM
```

DEMO 3: Chart

```
2200 REM  80 COLUMN DEMO BAR CHART
2210 COLOR 1
2220 RESTORE 2420
2230 READ X,Y,CH$:IF X=999 THEN 2260
2240 GOSUB 200
2250 GOTO 2230
2260 NUM=24
2270 PLOT 24,24:DRAWTO 24,170:DRAWTO 3
15,170
2280 X=1:FOR I=1 TO 14
2290 PLOT 24,170-I*10:DRAWTO 19,170-I*
10:Y=167-I*10:CH$=STR$(I*10):CH$(LEN(C
H$)+1)="@":GOSUB 200
2300 NEXT I
2310 RESTORE 2410:X=2:Y=178:FOR I=1 TO
 12:X=X+6:READ CH$:GOSUB 200:NEXT I
2320 X=2:RESTORE 2400
2330 READ SALES
2340 IF SALES=999 THEN 2390
2350 PLOT NUM,170:DRAWTO NUM,170-SALES
:DRAWTO NUM+24,170-SALES:DRAWTO NUM+24
,170
2360 X=X+6:Y=160-SALES:CH$=STR$(SALES)
:CH$(LEN(CH$)+1)="@":GOSUB 200
2370 NUM=NUM+24
2380 GOTO 2330
2390 GOTO 2390
2400 DATA 110,50,40,36,43,49,39,50,30,
90,120,140,999
2410 DATA Jan@,Feb@,Mar@,Apr@,May@,Jun
@,Jul@,Aug@,Sep@,Oct@,Nov@,Dec@
2420 DATA 1,6,Sales in@
2430 DATA 2,14,1000's@
2440 DATA 25,10,SALES OF ATARI COMPUTE
RS 1986@
2450 DATA 31,18,(600/800/XL/XE/ST)@
2460 DATA 999,999,X
2470 REM
2480 REM
2490 REM
2500 REM
2510 REM
```

Get it right!

The checksum table for the main program printed here is for the original listing. Once you RUN the program it will modify itself, and hence give a different table of values. Make sure that you checksum it, removing any typing errors, *before* you RUN it, otherwise you may have to type it all over again.

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
100	5364	110	3917	120	10492
130	4811	140	8327	150	3504
160	1345	170	18031	180	1628
190	15347	200	7933	210	1498
220	8690	230	3200	240	4336
250	4756	260	4750	270	4317
280	5181	290	3875	300	3338
310	5048	320	4907	330	4988
340	5181	350	4864	360	3428
370	4127	380	4292	390	4874
400	5527	410	5506	420	5426
430	5451	440	4690	450	5459
460	5427	470	5443	480	5498
490	4492	500	5016	510	5166
520	4754	530	4711	540	4497
550	5247	560	5071	570	4725
580	5005	590	4990	600	4339
610	4879	620	4402	630	4730
640	4328	650	4691	660	4077
670	4415	680	4227	690	4371
700	4065	710	10094	720	16297
730	16242	740	16499	750	16424
760	16143	770	13095	780	13362
790	12783	800	16038	810	13242
820	6799	830	8167	840	8729
850	8843	860	8873	870	1348
880	2347	890	3206	900	1943
910	6799	920	7969	930	8599
940	8752	950	8747	960	8775
970	1348	980	2347	990	3206
1000	1943	1010	5820	1020	5000
1030	3820	1040	3206	1050	1943
1100	4297	1110	4764	1120	5219
1130	3820	1230	3206	1240	3386
1250	2915	2100	8866		

Main program

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
2200	14055	2210	3928	2220	4697
2230	4039	2240	1345	2250	1876
2260	871	2270	8300	2280	6000
2290	1498	2300	4774	2310	13833
2320	3699	2330	1871	2340	13274
2350	16283	2360	13418	2370	12865
2380	13525	2390	13515	2400	12559
2410	14739	2420	7254	2430	2309
2440	9585	2450	6695	2460	12084
2470	6912	2480	3670	2490	5645
2500	21566	2510	1498		

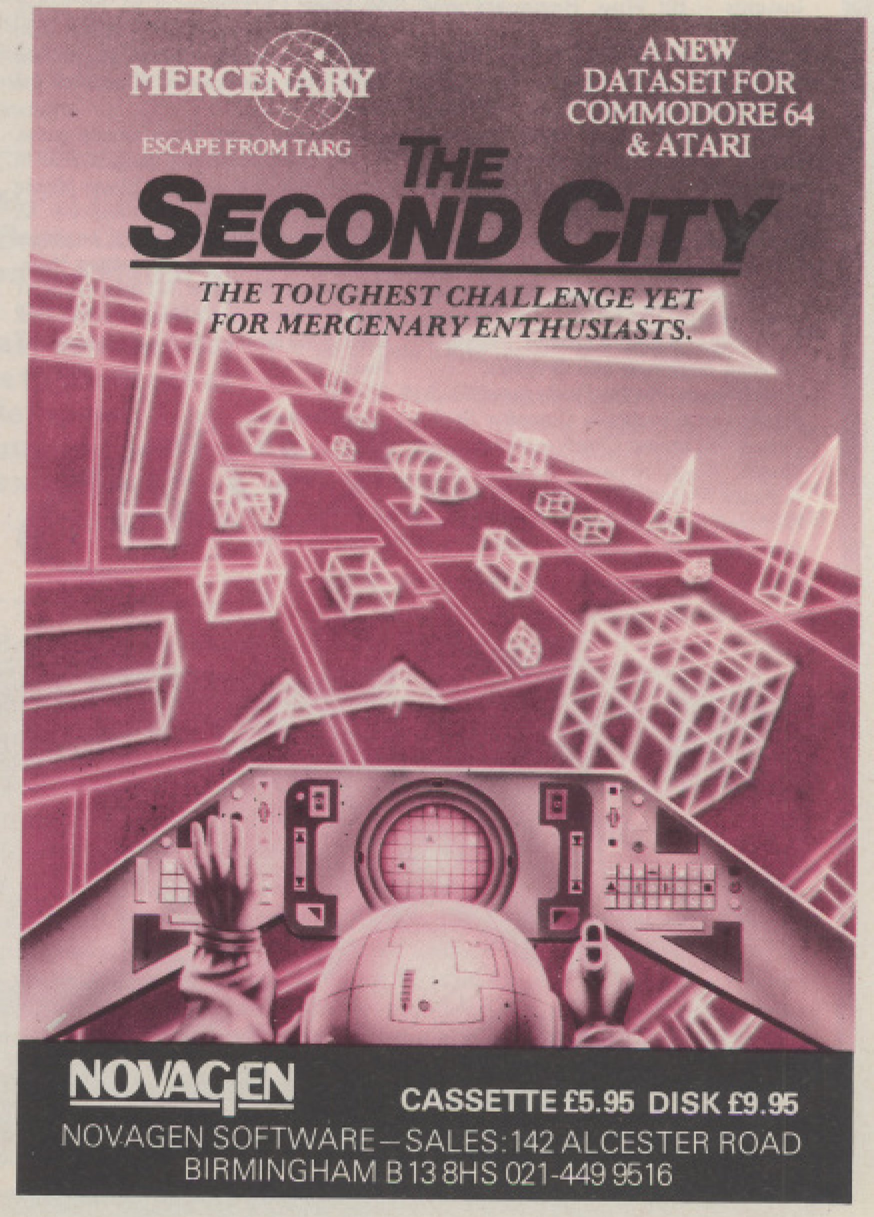
Demo 1: Computer Facts

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
2200	15063	2210	1881	2220	1256
2230	6728	2240	21163	2250	22989
2260	11639	2270	4923	2280	21453
2290	14724	2300	3412	2310	9893
2320	3737	2330	5368	2340	5767
2350	11478	2360	3073	2370	22937
2380	23999	2390	3111	2400	23968
2410	14933	2420	3307	2430	24332
2440	4290	2450	2501	2460	4129
2470	5295	2480	1345	2490	1898
2500	871	2510	871		

Demo 2: Adventure Game

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2230	5646	2240	1880	2250	1868
2260	1210	2270	7182	2280	3116
2290	16043	2300	1345	2310	12900
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2350	15091	2360	11626	2370	2009
2380	1871	2390	1895	2400	7204
2410	16241	2420	4130	2430	2923
2440	8053	2450	5284	2460	2747
2470	871	2480	871	2490	871
2500	871	2510	871		

Demo 3: Chart

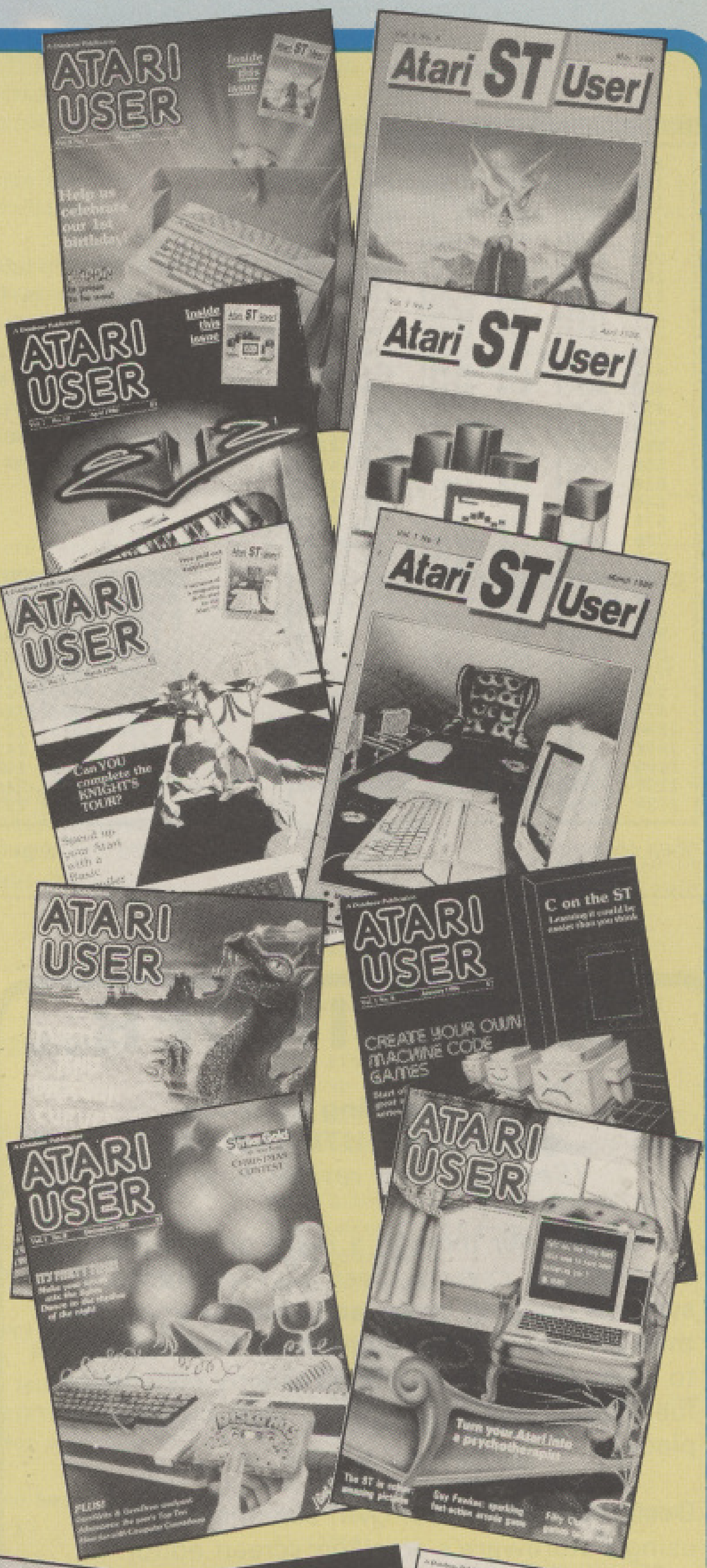


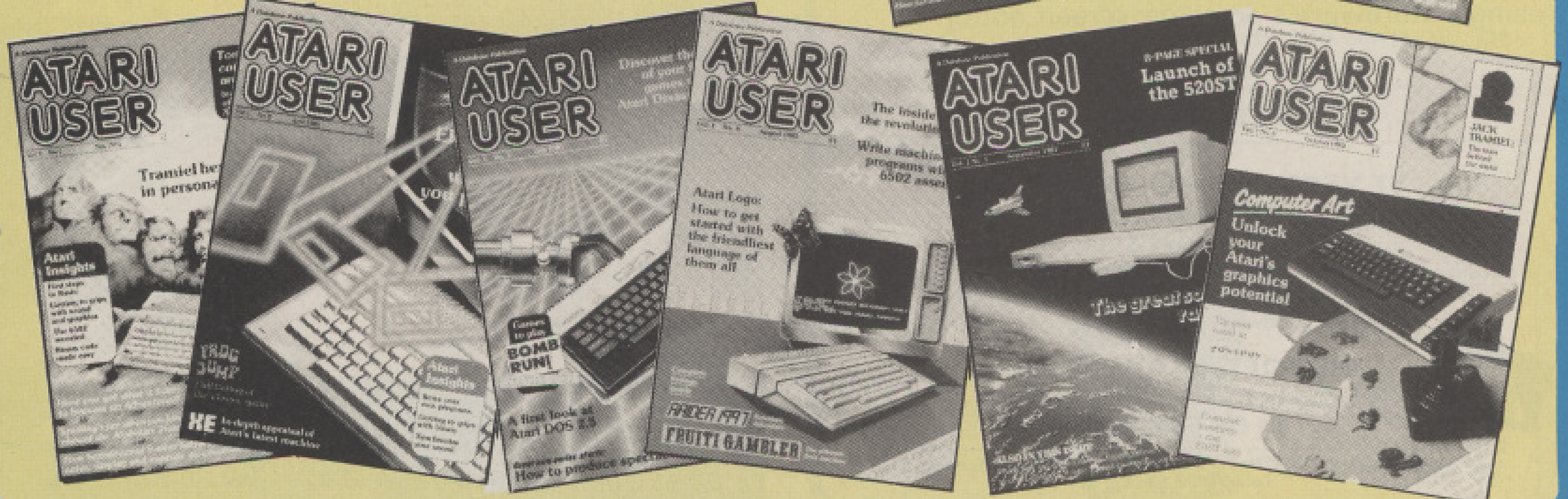
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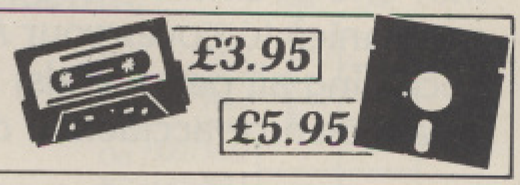




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JUNE: Frog Jump: Guide the frog to his home in this version of the arcade classic. **1300XE Ram Power:** Use the extra 64k of memory to good effect. **Submarine:** Scuttle the submarines. **Etcha-Sketch:** Draw pictures with a joystick. **Random Numbers:** Get random numbers from machine code. **Filthy Fifteen:** Can you keep the Filthy Fifteen happy in their cells?

JULY: Bomb Run: Flatten the deserted city and land safely. **Disassembler:** Find out what's going on deep inside your Atari. **Treasure Hunt:** Use logical thinking to find the treasure. **Password Generator.** Keep generating passwords till you find one you like. **Keyboard:** Convert your micro into an organ. **Quasimodo:** Can you sort out the mess of ropes in the belfry?

AUGUST: Assembler: Make machine code programming easier. **Fruiti Gambler:** Save money with this fruit machine simulation. **Mandala:** Complex patterns made easy. **Protection:** Protect your programs from prying eyes. **Display List:** Demonstration programs. **Raider 1997:** Futuristic text adventure. **Touch Tablet:** Demonstration programs.

SEPTEMBER: Maze Munch: Help Horace the Blob munch the maze monsters' morsels. **Data Maker:** Convert your machine code routines to DATA statements. **Display List:** Demonstration programs. **Screen Dumps:** Dump your Mode 8 screens to a 1029 printer. **Bricks:** Solve the Bricks problem.

OCTOBER: Pontoon: Twist? Bust! **Memory Dump:** Examine memory in hex and Ascii. **Display List:** Demonstration programs. **Wrap Trap:** Action game for one or two players. **Computer Canvas:** Make your own micro masterpiece. **Assembler Update:** Improvements for RAW assembler. **Ram Disc:** Make the most of the 130XE's extra memory.

NOVEMBER: Guy Fawkes: Help Guy escape from the guards. **Converse:** Teach your Atari to be a psychotherapist. **Display List:** Demonstration programs. **Bitwise Operators:** Utility to provide logical functions. **Circle:** Draw and fill a circle. ***Plus:*** Freebie of the month – **Creepshow** machine code pinball game.

DECEMBER: Countdown: Micro version of the famous TV game. **Get It Right!:** Atari User's own check-sum program. **Disco:** Son et lumière on your Atari. **List Utility:** Makes listing easier. **Display List:** Demonstration programs. ***Plus:*** Freebie of the month – **Jane's Program** machine code entertainment.

BASIC COMPILER: The entire set of Basic Compiler programs from the March to June issues on one tape/disc. Write easy routines for your programs that will run at machine code speed. Contains the Compiler, Library and many example programs. (N.B. Requires an assembler.)

JANUARY 1986: Bells: Help Mr Humpy rescue Esmerelda. **Get It Right!:** Atari User's own checksum program. **Alien Attack:** The game to accompany the machine code series. **Lister:** Make listing programs easy. **Dots:** Play the micro or another player at this strategy game. **Dump:** 1020 printer/plotter routine. ***Plus:*** Freebie of the month – **Scramble Fighter** machine code game.

FEBRUARY: Micropainter: Programs to manipulate Micropainter screens. **Clock:** Interrupt driven clock utility. **Flasher:** Flashing colour utility. **Bounce!:** Simple to play, hard to master. **Bridge:** The thinking person's card game. ***Plus:*** Freebie of the month: **Demon's Lair** – an adventure game you may never escape from.

MARCH: Horse Play: Knight's tour program. **Basic Compiler:** Program to accompany the new series. **Alien Attack:** Final part of assembly listing. ***Plus:*** Freebie of the month: **Winston in the Caves** – can you keep your head and help Winston find his?

APRIL: Synthesiser: Activate the hidden depths of the Atari sound chip. **Disc index:** Keep track of disc files and free space with this index printing program. **Graphics:** Make the most of Modes 12 and 13. **Mancuna:** Can you beat the game that learns from its mistakes?

MAY: Cavern Escape: Can you help In-I-Go Joe escape from the labyrinths with King Muneebag's gold? **Player Missile:** Program to accompany the start of the series. **Spelling:** Automate those weekly school spelling tests.

JUNE: Maze Creator: Create hundreds of new mazes for last month's Cavern Escape game. **Player Missile Designer:** Create your own DATA shapes with this Player/Missile Editor. **Five Liner 1:** Simple Dice rolling routine – build it into your own programs.

JULY: Space Maze: Manoeuvre your space ship through the treacherous space caverns. **Player Missile Example:** Program to display your Player Missile graphics. **Gadgets:** Two programs to run devices via your new joystick-port interface. **Five Liner 2:** Create BBC-type displays on your Atari. **Rambas:** Correct those bugs in the XL's Rev. B Basic.

AUGUST: Frank the Fruit Fiend: Arcade Action in Basic and machine code. **80 Column Display:** Use 80 column displays on your 8 bit Atari. **Get It Right:** By popular demand, an updated version of our checksum program. **Player Missile Programs:** Three programs to move your PMGs vertically. **Five Liners:** More of our utilities in five lines.

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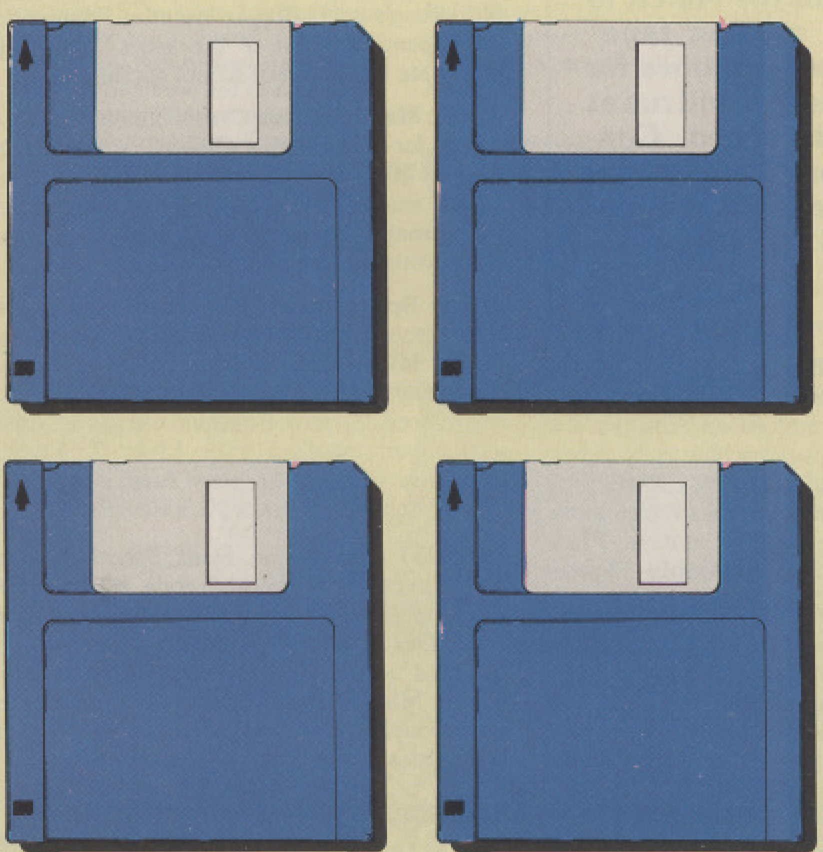
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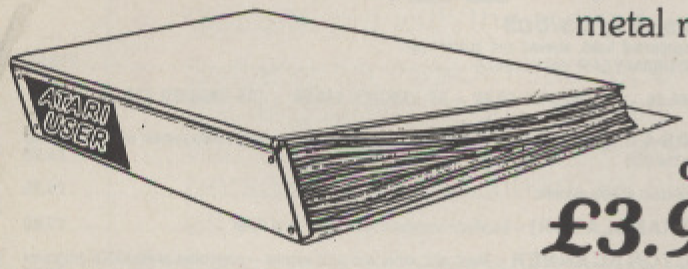
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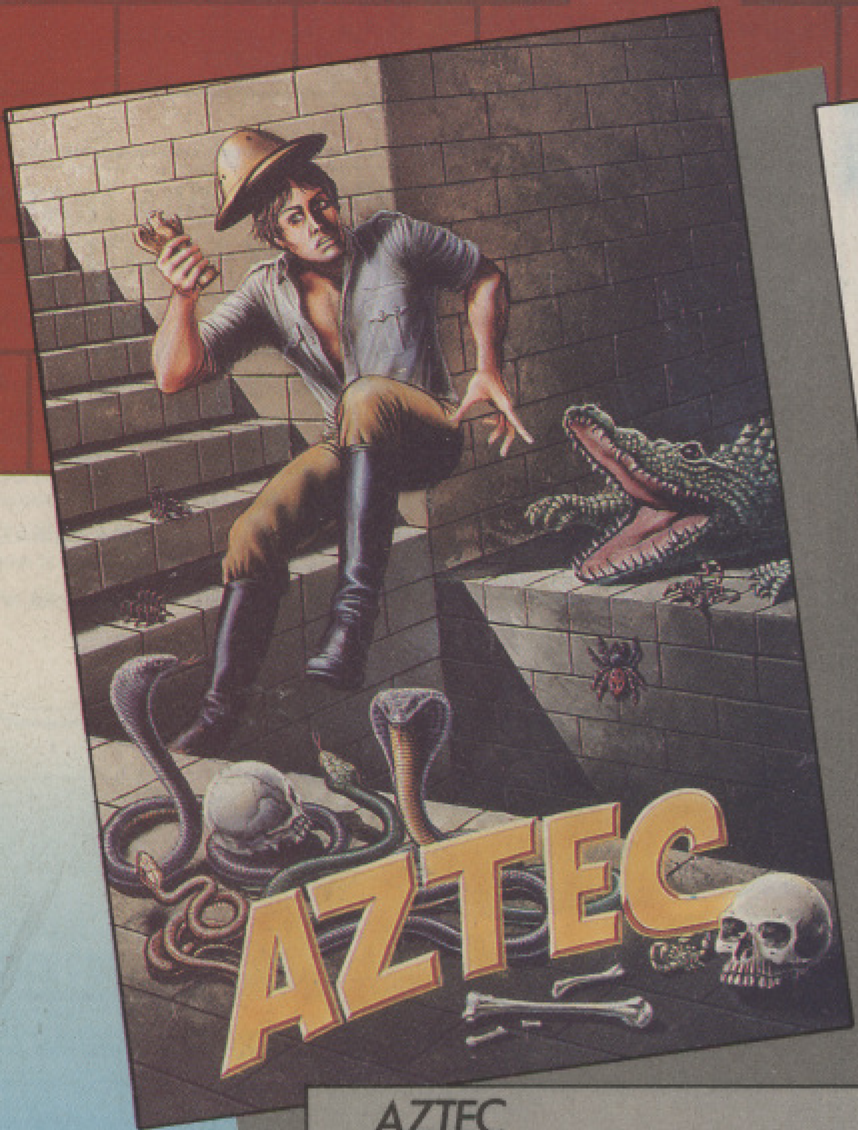
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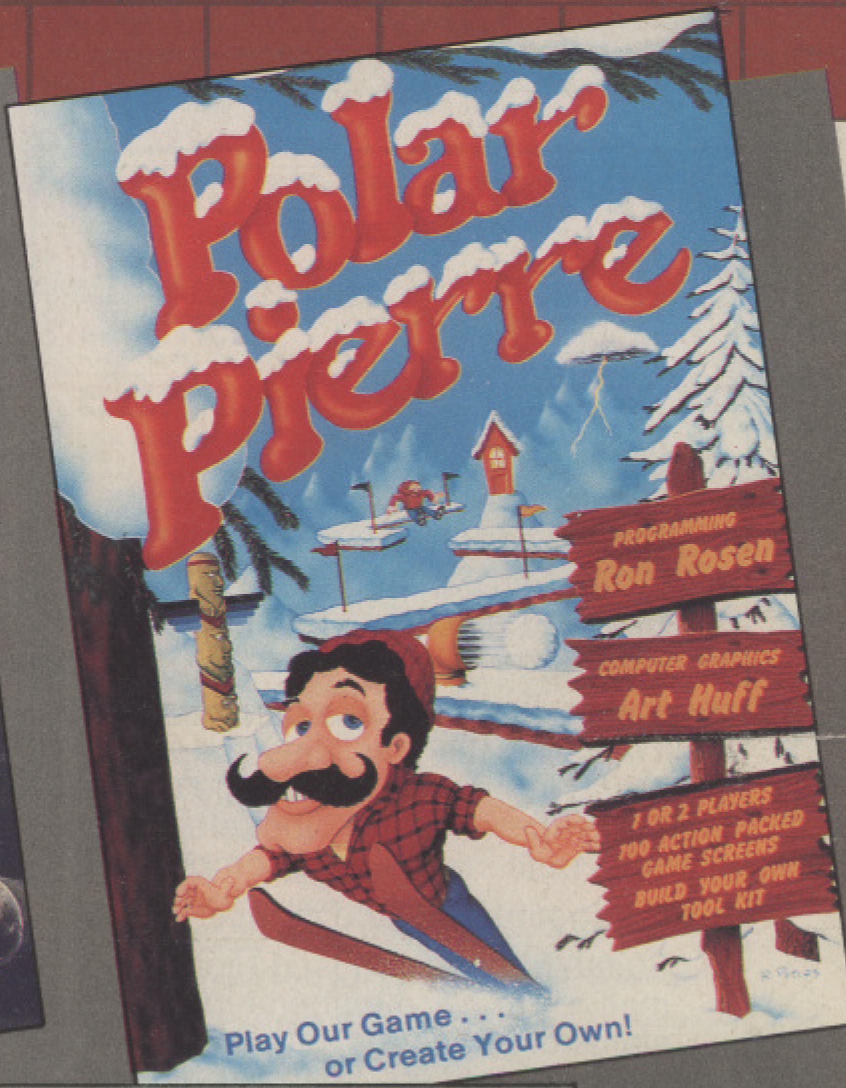
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